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PSYCHOTHERAPEUTIC CLINICS IN FACT AND FANCY*

BY

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No one, I presume, would venture to dispute the need for psychotherapeutic clinics. We are all agreed that minor mental maladies account for much unhappiness and inefficiency. The number of people in this country who would benefit by treatment, were it available, has been variously estimated from 3,000,000 upwards. Dr. Halliday has recently published an impressive statistical investigation which puts the proportion of psychoneurotic disability to all other forms of disability as one to two. This suggests that as a mere economic problem the community should be doing much more than it is doing for the psychoneuroses. In a paper read last month at the Royal Society of Medicine, Dr. Rees, the present Director of the Institute of Medical Psychology, stated that there are in the British Isles at present 162 clinics or early treatment centres. That is an encouraging fact, especially when we reflect that in 1920 there were two, and only two, organizations that could be so described.

The Medical Profession and Mental Health

But before investigating further the need for more clinics we would do well to consider in some detail the relation of our profession to the mental health of the nation. Fortunately we need not hold ourselves responsible for the woeful prevalence of mental disability that is usually disguised by the term "nerves." These minor mental maladies are mainly attributable to dysgenic propagation, to economic insecurity, to parental stupidity, to unhelpful religious influences, to faulty education, or to sexual difficulties. But they are frequently conditioned, and in certain cases exclusively produced, by somatic factors. Therefore a certain responsibility for treatment, if not also for prophylaxis, remains with our profession. And as a profession we are frankly unequipped to deal with most of these conditions. We have all been educated in an atmosphere of organic causality; we have been taught that if a symptom, say a monoplegia, is organic, its aetiology must be studied, whereas if it is "only" functional we have no responsibility beyond prescribing bromide or valerian. Sir Walter Langdon-Brown, in his recent survey of progress in medicine, says, with ample justification: "More than half the patients we saw on entering practice were suffering from conditions undescribed by our teachers or our textbooks." It is true that we all had to attend clinical lectures at a mental hospital. But the relation of what we saw and learned there to the neurotic factor in general practice was, to say the least of it, remote.

The situation, then, is that the community at large is producing an ever-increasing number of maladjusted people. For the most part they are regarded as medical cases. The doctors of to-day have to deal with these cases in spite of the facts that they themselves are ill-equipped and rarely interested in them. To meet the demand a semi-official specialty has developed, generally referred to as psychotherapy.

Handicaps of Psychotherapy

This specialty tends to work in clinics, and is characterized by three principal handicaps—namely, the intrusion of charlatans, the jealousy of other professional groups, and deplorable sectarianism within its own ranks. Allow me to enlarge on these three points. First, the intrusion of charlatans: perhaps it would be more accurate to say that the charlatans anticipated psychotherapy. Long before Culpin or Gillespie made estimates of the number of maladjusted people in the United Kingdom, the evidence was there for those who had eyes to see. It consisted in the prodigious growth of Christian Science, the increasing popularity of pilgrimages to shrines, and the phenomenal exploitation of the public by the vendors of worthless panaceas. These and other forms of extra-professional healing are still with us and, by their triumphs, teach some of us to be broad-minded, while, by their failures, they teach the educable elements in the community that it is generally unsafe to take one's complaints to the charlatan—such, at any rate, is our modest hope.

The second handicap of psychotherapy lies in the jealousy of the professional groups. It is obvious that the neurologist cannot be tenderly predisposed to the psychotherapist. Is he not a nerve specialist in the only exact meaning of the term? And what does this psychotherapist profess to treat *but* nerves? Dr. Mapother, in his *Plea for Nominalism in Psychiatry*, says:

> "Determination of the form of normal responses or of symptoms is a function of the central nervous system. How then do without neurology? For my part, I venture to think that the ancestors of the psychology of the future will be such investigators as Hughlings Jackson, Sherrington, Head, Pavlov, and Lashley."

It is remarkable to find a responsible and learned psychiatrist in this decade making such an unequivocal plea for that very attitude towards the psychoneuroses that has been responsible for the impotence of our profession in this department. Let us admit frankly our debt to the neurologists and our frequent need of their

* Being an address delivered at B.M.A. House, Edinburgh, on May 17th, 1935.

superior capacity of differential diagnosis between organic and functional aetiology, but let us hope that our therapeutic resources are not to be inspired by principles of cerebral localization.

If the neurologist finds the psychotherapist an unwelcome bedfellow, the alienist entertains very similar feelings. His province is mental disorder, and his knowledge of mental disorder has been acquired in the only true and orthodox way—that is, in a mental hospital. He therefore makes a very emphatic claim to control the early treatment centres that are being established under the Mental Treatment Act of 1930. He cannot but regard as an intruder the medical man who, with little or no experience in a mental hospital, professes to treat minor mental disorders. Nevertheless we must face two facts. The first is that the care of inaccessible psychotic patients has in general little bearing on the treatment of accessible psychoneurotics. The second is that the isolation of patients in an institution promotes in the mind of the doctor a certain detachment from the patient's social environment. The psychotherapist, on the other hand, is continually forced to deal with his patients' reactions to their domestic surroundings, which not infrequently constitute the major part of the problem. In point of actual practice, I believe that most unprejudiced observers would give it as their opinion that for the training of the ideal psychotherapist one year in a mental hospital is the limit of beneficial experience. Further residence tends to blunt psychotherapeutic acumen and resource.

There are other groups in the profession that object to the psychotherapist, not so much on account of vested interests as because they object to having their work criticized. For instance, the woman who, suffering from "neurasthenia," is persuaded to part with her transverse colon, may be subsequently cured of her father-fixation and regret her surgical experience. Such cases make for the unpopularity of the psychotherapist. But I need not further labour this point.

Sectarianism

The third handicap under which psychotherapy labours is the sectarianism which rends the whole department. In this connexion I would quote once more from Sir Walter Langdon-Brown: "The fissiparous tendencies of the psychotherapists themselves," he says, "have indeed been a stumbling-block. Dictatorships, heresy-hunting, and excommunications have been all too prevalent. . . . Not until such internecine struggles subside will real advance be possible." This is a hard saying, and one would fain be in a position to controvert it. Unfortunately it is true.

Let us then examine the various sects from the point of view of theory. They may be grouped under seven headings:

1. *The Neurologists.*—I have already referred to this group. Their position is adequately set forth in Dr. Mapother's presidential address to the Section of Psychiatry of the Royal Society of Medicine in November, 1933. I confess I have great difficulty in appreciating the attitude of the neurologist as presented in that paper. The neurologist, dealing with a case of phobia, ophthalmoscope in hand, suggests the picture of frustrated competence on the doctor's part and fruitless bewilderment on the patient's side. If you will bear with me for a moment, I will tell you a story which is only justified in an assembly such as this by its allegorical value.

In my student days electric lighting was introduced in St. Andrew Square. The gloom of neighbouring gas-lit streets was accentuated. Late one night a belated reveller was observed by a passer-by to be groping in the gutter. The following conversation ensued:

"Have you lost anything?"
"Aye, I've lost half a croon."
"Can I help you to find it?" and later,
"But are you sure you lost it here?"
"No; I lost it in St. David Street."
"Then why are you looking for it here?"
"The licht's better by far."

I venture to submit that the moral of this story applies not only to the neurologists but to all the other sects in the whole department of psychotherapy. We are all so reluctant to grope where there is little light; we all prefer our own region of brilliant illumination, and despite rational indications to the contrary, we insist on pursuing our fruitless investigations under conditions of our own competence rather than of the patient's need.

2. *The Psychiatrists.*—I have mentioned this group already. It is naturally difficult for the well-trained alienist to think of pre-psychotic symptoms except in terms of the end-result with which he is so familiar. I submit that if a doctor is to come to grips with an early schizophrenia he requires among other qualities courage and determination. If the rest of his working day is spent with a few score hopeless cases of dementia praecox, all of whom began in the same way, his courage is liable to fail and his determination to weaken. On the other hand, working outside the mental hospital, especially in an active clinic, one can observe the cases that spontaneously improve, the cases that appear to yield to treatment, as well as those that need to be certified. If the neurologist's outlook centres round localization, the alienist's is apt to revolve round disposal. In America there is an important group designated "neuro-psychiatrists." It is a practical combination of the two specialties. It covers much the same ground as the D.P.M. course in our country; but, like that course, it can only be said to comprise psychotherapy in a very casual way.

3. *The Freudians.*—Admitting, as I am sure most of us would admit, that Freud has contributed to psychopathology more than any living man, it yet remains a fact that his theory of the psychoneuroses makes it impossible for his followers to co-operate in any satisfactory way in the work of a psychotherapeutic clinic. The few who are exceptions to this rule are those who accept the absolutism of Freudian doctrine with some measure of reservation. Those who subscribe to the doctrine in its entirety assume by identification an attitude of disparagement and non-co-operation towards all other views and all other therapists. Rickman has admitted that at present there can be no fusion in the outlooks of the psycho-analyst and of the psychiatrist. "The Freudian school . . . stands as self-contained and independent as chemistry did fifty years ago." The Freudians, in point of fact, deny that human behaviour comprises any factor that is not susceptible to what they claim to be the only scientific form of approach. McDougall has said in this connexion: "There is nothing more obstructive to the advance of knowledge than a certain unformulated dogma implicitly accepted by many men of science—namely, the dogma that what we cannot fully understand cannot happen." Furthermore, the psycho-analysts have repeatedly stated that the intelligence of both the doctor and the patient is a factor subsidiary to the doctor's training. If he has gone through an analysis which has resolved his own conflicts adequately he will be able to obtain and exploit the necessary transference from a patient of the most modest mental endowment, and the ultimate result will be successful. A theory which discounts so egregiously both personal endowment and experience of life on the part of the therapist is one which must inevitably remain "self-contained and independent."

4. *Jung's School of Analytical Psychology.*—The important contribution which Jung has made to psychopathology is not represented in terms of practical workers, certainly in this country. It has always been my experience to find that followers of the Zurich school were ready to co-operate with other psychotherapists in a way that introduced no special difficulties.

5. *Adler's Individual Psychology.*—Adler's contribution to our theoretical understanding of maladjustment may not be of great significance. But the practical value of his reiteration of organ inferiority and emphasis on compensation has been of the utmost importance. The extensive literature which has grown around this circumscribed view of maladjustment is a strange contrast to the Freudian literature. In the latter all views converge on the pontifical source of inspiration. With Adler it is almost safe to say that his disciples generally present the gospel more successfully than he does himself. This is particularly true of the late F. G. Crookshank. That brilliant and erudite physician elaborated the somewhat tenuous theme of Adlerian psychopathology into an inspiring presentation of the psychosomatic unity. If our country could produce a few contributions comparable to that of Crookshank, psychopathology would be enriched in the way that it needs most at the present time. He was indeed the man who looked for the half-crown in St. David Street, casting aside preconceptions that favoured a particular theory.

6. *The Eclectics.*—These are those who try to incorporate in their technique and theory such elements as appear to be most valuable and compatible. The late Dr. Rivers was bent upon achieving some such eclectic synthesis. Dr. T. A. Ross, formerly of the Cassel Hospital, has done much, and will, we hope, do more, in the interests of eclecticism. Dr. Emanuel Miller, the president of the Medical Section of the British Psychological Society, also stands for a broad outlook. At the Institute of Medical Psychology something is being achieved in this direction. The large number of qualified men and women connected with the Institute and the varied sources of their medical and psychological equipment promote processes of attrition and fusion that seem eminently wholesome. But in all human affairs one-sided propaganda is always more effective than tolerant eclecticism, so that we must not expect spectacular results.

7. *The Metabolists.*—Under this heading I group the representatives of organic medicine who regard some metabolic factor as a cause, rather than a condition, of maladjustment. I refer to the focal septicians, who will detoxicate a patient interminably rather than ask a single question of psychological relevance; the allergists, who are so obsessed by the importance of the gunpowder that they are impelled to deny the relation of the finger to the trigger; the endocrinologists, who seem to regard all neuroses as their exclusive province, not to mention various groups of obsessive materialists. All these have most valuable contributions to make towards the theory and therapy of the minor mental maladies. It is to be deplored that their help is so often lacking and so often unasked because of the difficulty experienced by the average physician in achieving binocular vision.

The Therapeutic Ideal

In general, these seven groups represent the material out of which the psychotherapeutic clinic may be staffed, in fancy if not in fact. Now what of the therapeutic ideal with which a clinic is established? Obviously it will vary according to the sectarian bias that preponderates. In a recent paper it was assumed that "psychotherapy was the treatment of choice." This phrase suggests a bias that I venture to condemn. The therapeutic idea should be so broad as to exclude any preconception of the sort. The clinic should open its doors to those who claim to be maladjusted, and it should provide treatment for all such as appear accessible to treatment. Furthermore that treatment should be determined by the two factors of speed and permanence and by no others. Allow me to give you an example that seems to illustrate this point:

Miss X., a school teacher, aged 40, was referred by a doctor in the provinces. She complained of long periods during which life was not worth living. It appeared that at the age of 19 she had an attack of hysterical aphonia, after which she noticed slight seasonal depressions and exaltations. Two years ago the depression became acute, and lasted six months. After a period of elation a similar phase of depression came on, and again lasted six months. There were interesting and anomalous points in her heredity, her family position, and her love experience. These would, no doubt, have engaged the attention of the physician whose treatment is "psychotherapy by choice," as they had apparently interested her family doctor. But what he did not mention, and what the patient did not vouchsafe till questioned, was that during both these periods of depression she had suffered from complete amenorrhoea.

My suggestion is, therefore, that we should be prepared to treat a case like this on rational and modern lines of metabolic normalization before we have recourse to psychotherapy. But this will not happen where there is a preconception about methods of treatment. Against this type of mistake we may put the clinics where circumstances of time and personnel render psychotherapy in any serious sense a practical impossibility. Clinics which only function once a week, and those where the doctors have to see two or more patients per hour, are clinics where physical therapy is resorted to, not of choice, but of necessity. Indeed, this time factor is at the root of most of the problems of psychotherapeutic clinics. Ideally there should be a diagnostic department in which the various pathological factors are assessed and the appropriate treatment or series of treatments are mapped out. The actual therapists should have their time jealously protected so that they can pursue the indicated treatment with as much leisure as they would devote to a similar case in private. Furthermore, no case should be accepted for any form of mental analysis, however superficial, unless the patient can attend three times a week, certainly in the early stages. Again, I would emphasize the importance of evening sessions. The most curable cases are presumably those that are still in full work. To facilitate their treatment without losing working time, without the knowledge of the employer, and without hospitalization, is the form of treatment that most approximates to prophylaxis.

Multiple Maladjustments

I have suggested a diagnostic department for reasons that you may have already apprehended. The first is that we are all prone to seek what we are looking for where we ourselves see best. The second is that a high proportion of cases—this is my personal experience—have a multiple aetiology. In the interesting statistics issued by various institutions, one sees carefully tabulated cases of anxiety, of hysteria, and so on. But never, or very rarely, is there a column for the multiple maladjusted—the psychosomatic breakdown, the physical wreck with an emotional conflict. And yet in real life the clinical material that presents itself to a psychotherapist is very frequently of this mixed order. The man who came to you to-day complaining of acute depression was as you saw him neither because he had just received an unpleasant letter from his bank manager nor yet because he had had no action of the bowels for three days, but because an economic menace coincided with an exacerbation of chronic toxaemia. The housewife goes to bed

with a brain-storm not merely because her period is imminent nor yet because the cook gave notice, but because the cook happened to take offence on the twenty-seventh day of her mistress's menstrual cycle. That blushing youth of 28 who finds increasing difficulty in concentration and who is progressively shunning social life will not be cured if you merely show by his increased basal metabolic rate that he is suffering from hyperthyroidism ; nor is his condition solely due to the conflict over early masturbation (which the least competent psychotherapist can detect) ; nor would you be correct in attributing his whole syndrome to the horizontally impacted third molars revealed by radiography. His adjustment to life can only be rectified when the dental surgeon, the metabolist, and the psychotherapist co-operate. And that woman who has been a self-pitying, spineless neurotic ever since you knew her, defeats your patient, if pessimistic, therapy, not merely because her husband drinks, but because she has suffered from diverticulosis longer than you have known her. You may prescribe a change of husband, but unless you can give her a new heart and a new colon, do not expect a radical cure.

The Future Psychotherapist

If, as psychotherapists, we are to deal with those who are out of tune with themselves and with life, we must be prepared to recognize, if not to treat, every morbid factor from narcissism to hookworm. And this brings me to a point of mere historical interest. Psychotherapy is going the way of all recognized specialties. The future psychotherapist must specialize early if he is ever to succeed. That there is something wrong with our medical and social conceptions here, I am convinced. But the fact remains. It is impossible to hold up the tide, and we need no longer expect to see the ranks being recruited from general practice. I confess to a certain misgiving when I contemplate these young graduates of both sexes who embark on psychotherapy with a medical degree, perhaps a D.P.M., and their own personal analysis. Technically they are often very well equipped, but they have never tackled a difficult labour single-handed, they have never been in the death-stricken home, they have never witnessed the father's irritability nor the mother's indulgence—in short, they have never made contact with the emotional microcosm in which patients live. But the men and women who have served their apprenticeship in general practice (and I am glad to say we have a few bow-and-arrow members of the Institute staff) have learned things that are not written in books, things that don't occur in institutions, that have no relation to cerebral localization, and on which the physician's own analysis throws no light. Peradventure, in some remote future, the ideal psychotherapeutic clinic will be made possible by ideal medical organization. This would include, I sincerely hope, a system whereby the psychotherapist had a certain degree of maturity and experience to combine with his special theories and technique.

The fact of the matter is that the youthful psychotherapist is deficient in the practical philosophy of life. He may know a great deal about compensation and introjection, but if he has not acquired a certain capacity of valuation he can be no more than a doctrinaire in the guidance he offers to his patients. Indeed, I would venture to say that the weakness of psychotherapy to-day lies most of all in its failure to comprise on the one side biological factors, and, on the other, philosophical considerations. All attempts to restrict the field of maladjustment to a purely psychological aetiology must end in discrediting it in the eyes of those who maintain that to see life aright we must see it whole.

OBSERVATIONS ON THE ABSORPTION OF CAROTENE AND VITAMIN A

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The problems of fat absorption concern not only the true fats (glycerides) but a wide variety of substances, many of them of outstanding biological importance, which are found in close association with the fatty components of foods. For many years those engaged in the study of the mechanism of fat absorption in the body gave attention solely to the glycerides, and ignored the no less important question how such "unsaponifiable" substances as cholesterol enter the tissues. In recent years, however, it has become more urgent that this aspect of "fat metabolism" should be studied, because of the rapid strides made in our knowledge of the nature and function of the "fat-soluble vitamins" and related compounds.

It is now established that a wide variety of chemical substances, sharing with the true fats but the one property of showing similar solubilities in certain solvents, are absorbed from the intestine with an ease and to an extent that was unsuspected. Perhaps the most striking example is that recorded by Professor Channon, in which the hydrocarbons of ordinary medicinal "liquid paraffin" were found to be absorbed from the intestinal tract of rats and pigs and stored to a surprising extent in the liver.[1]

In discussing the absorption of such substances, or for that matter that of the true fats, two main lines are indicated by existing knowledge. In the first place it is clear that there are at the present time good reasons for seriously entertaining the view that particular absorption may occur.[2] Alternatively, a more conventional path may be followed by trying to picture an intermediate conversion of these "fat-soluble" substances into "water-soluble" and "diffusible" forms. In thinking of the formation of "water-soluble" complexes the possible function of the bile comes immediately to mind, and it will be remembered that more than one theory involving the agency of that secretion has been advanced. The work of Moore and Parker[3] and later certain observations by Channon and Collinson[1] brought forward the question whether mere solubility in bile might be the chief factor determining absorption of certain fatty substances. As the latter observers point out, however, this explanation fails to account satisfactorily for the passage of the constituents of "liquid paraffin" through the intestinal wall. Another aspect of the possible part played by the bile concerns the belief that the bile acids may form water-soluble complexes with a variety of fatty substances. At the moment this theory is attracting a good deal of attention, mainly as a result of the work in the laboratories of Fürth,[4] Verzár,[5] and Schmidt.[6]

Of particular interest to us in this connexion are the complexes which it is stated can be formed between desoxycholic acid and carotene and desoxycholic acid and vitamin A, two "fat-soluble" substances of outstanding importance in human and animal nutrition. The former has been described by Euler and Klüssmann[7] and by Greaves and Schmidt,[6] and the latter by Shimizu and Hatakayama.[8] These interesting materials appear to be water-soluble, and might, therefore, reasonably provide a form in which fat-soluble unsaponifiable substances could be transported through the intestinal wall.

Examination of Chylous Fluid from the Human Subject

It is rare to find an opportunity to study fat absorption by direct examination of the character and composition of the contents of the thoracic duct in man, but such was provided by the interesting case of chylothorax which came under the notice of one of us (M. E. B.) and which is described in the accompanying paper (p. 1211). The character of the lesion in this patient was such that a not inconsiderable proportion of the chyle was diverted and collected in the pleural cavities. As it was necessary to remove this fluid every few days in order to afford some relief to the patient an attempt was made to ascertain to what extent, and in what form, the carotene and vitamin A administered by the mouth in the course of treatment appeared subsequently in the chyle. The data obtained in the course of this investigation are set out in the following table.

Date	Material Administered	Chylous Fluid Removed	Analysis of Fluid	
			Carotene	Vitamin A
		c.cm.	mg. %	mg. %
4/9/34	100 mg. carotene between September 4th and 11th	1,140	0.034	0.10
11/9/34		3,040	0.045	—
17/9/34	—	1,560	0.060	—
19/9/34	Vitamin A dosage begun September 19th—	1,080	0.087	0.13
23/9/34	Avoleum capsules 6 daily.	1,080	0.065	0.23
28/9/34	By September 28th total intake 0.125 mg. vitamin A	1,320	0.058	0.61
30/9/34	—	900	0.051	0.34
2/10/34	—	1,800 from abdomen	—	—
4/10/34	—	1,140	—	0.18
8/10/34	—	1,200	—	—
13/10/34	—	1,230	—	—
15/10/34	—	2,700 from abdomen	—	—
17/10/34	—	930	—	—
24/10/34	—	600	—	—
27/10/34	—	2,040 from abdomen	0.034	0.15
29/10/34	—	1,020	—	—
1/11/34	About 150 mg. carotene given between October 30th and November 4th	1,200	—	—
4/11/34		1,080	0.034	0.20

At post-mortem about 1,200 c.cm. removed from thorax.

Estimations of carotene and vitamin A were made on material extracted by ether from samples of the chylous fluid after treatment with sodium hydroxide and alcohol, which facilitated dispersal of the colloidal system. The carotene was estimated colorimetrically, using a Hellige colorimeter and a potassium dichromate standard; vitamin A was estimated spectroscopically.

Excess of Carotene Ingested over Amount Absorbed

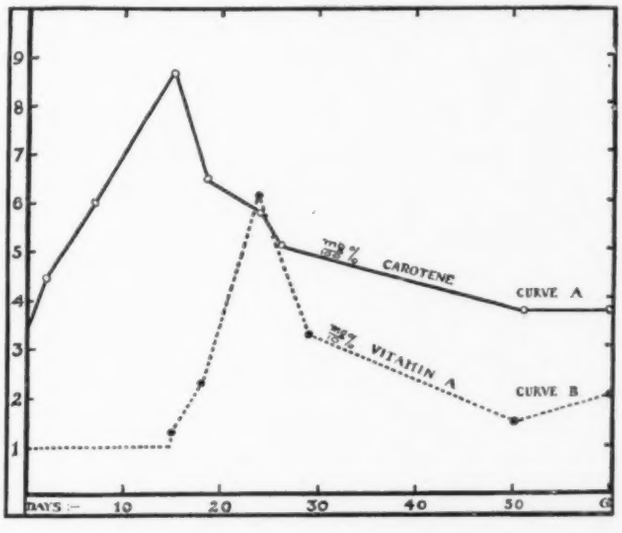
The results of the first administration of carotene (100 mg. between September 4th and 11th) are reasonably clear. The analysis of the chylous fluid before the administration shows that carotene was already present; presumably this originated from the ordinary diet of the patient, which contained a small amount of green vegetables and other sources of the lipochrome. In considering the results of the later analyses it is important to note that there is no reason to suspect that the basal diet was to any significant extent responsible for the variations in carotene content of the pleural fluid.

The figures in the table and Curve A in the chart show that a sharp rise in the carotene content of the chylous fluid followed the intake of carotene. The rise is followed by a steady fall to the level of concentration observed at the outset of the study. It is not a simple matter to attempt an estimate of the total amount of carotene which appeared in the fluid tapped from the thoracic cavity. But even if we take the maximum value for each period the figure derived (say 2 mg.) falls far short of the amount (100 mg.) which was actually administered. Even if we assume a total daily production of 3,000 c.cm. of chyle—and it must be borne in mind that this is probably an overestimate in view of the poor physique and debility of the patient—the amount of carotene accounted for is not 20 per cent. of that ingested.

The second attempt to study the absorption of carotene failed. Between October 30th and November 4th 150 mg. were administered, but the patient was rapidly declining, and shortly afterwards died. No evidence of an increased carotene content of the chylous fluid was noted, doubtless because absorption was impaired by the failing vitality of the patient.

Vitamin A: Ingestion and Approximate Absorption

The administration of vitamin A was begun on September 19th. Two tablets of B.D.H. avoleum were given three times daily until the 25th. In all fifty tablets were given, and it may be accepted that approximately 125 mg. of vitamin were contained therein.* The total amount of vitamin A present in the fluid removed from the chest



between September 19th, the date at which administration began, and October 4th was approximately 10 mg. The absorption over the period of investigation is shown by Curve B in the chart. Again, assuming in this patient a daily production of lymph of the order of 3,000 c.cm., a rough calculation of the total amount gives us the figure of about 100 mg., which is in reasonably good agreement with the amount actually administered—namely, 125 mg.

The conclusion seems justified, therefore, that the absorption of vitamin A from the intestine was in this case much more satisfactory than that of its precursor carotene. There is nothing remarkable in these results. They merely demonstrate the direct absorption of carotene and vitamin A by way of the thoracic duct, and the type of absorption curves (see chart) are exactly what would be expected.

It is, of course, reasonable to conclude that the rise in vitamin A represents absorption from the intestine and not to some extent formation from the carotene given in the earlier period. The accepted view is that the vitamin is formed in the liver following abstraction of the lipo-

* We are indebted to Dr. W. F. Underhill of British Drug Houses Ltd. for this estimate.

chrome from the circulation by the Kupffer cells.[9 10 11] There is no evidence that conversion may occur in the body fluids.

"Diffusibility" of the Carotene and Vitamin A

The material in our possession was also examined in order to see whether information could be obtained regarding the physical or chemical state of the vitamin or carotene present. Naturally we did not expect to find bile-salt complexes, because even assuming for them a function of absorption one would expect it to concern solely the phase of transport through the wall of the gut. Actually it was found that direct extraction with ether removed but a small fraction of the carotene and little or none of the vitamin. As regards the former substance this behaviour recalled that of the interesting colloidal suspension of carotene which can readily be prepared (Fodor and Schönfeld,[12] Drummond and Macwalter[13]). The similarity was extended when it was found that a proportion of alcohol would make the pigment readily extractable by ether. As van der Bergh and Müller[14] have pointed out, this behaviour of aqueous suspensions of carotene renders unnecessary the hypothesis advanced by Palmer[15] that carotinoids are carried in aqueous solution in body fluids—for example, the blood—in the form of complexes with proteins.

Experiments with chylous fluid showed that no trace of lipochrome pigment passed through collodion membrane when subjected to ultra-filtration at *p*H 6.5 to 8 or when dialysed at various reactions over the range *p*H 3 to 8. It is clear, therefore, that if the carotene was present in a "water-soluble" form it was one incapable of passing an ordinary membrane. A less extensive series of tests was made on the vitamin A, but all the results agreed in showing that it was not present in a "diffusible" form.

A valuable contribution to the study of the problem of the passage through vital membranes of substances "non-diffusible" in the ordinary sense has recently been made by Süllmann and Verzár.[16] They found that artificial membranes of such a porosity that the passage of certain dyestuffs (for example, Congo-red) was permitted, would also allow the diffusion of quite a significant proportion of blood fat. Such artificial membranes are regarded as possessing a permeability comparable in some respects with that of the capillary walls. To accept this view is to dispel many of the difficulties which have faced those who sought to elucidate the process by which the fats pass to and from the circulating fluids.*

But this theory does not satisfactorily cover such other "fat-soluble" substances as those we are now considering. There are very good grounds for believing that transport of the true fats and that of the associated pigments and vitamins may be independent of each other. Presumably, therefore, one cannot assume that systems which under certain conditions may let fats through a structural barrier will necessarily allow associated substances to pass. It is interesting in this connexion that Polleri[17] has recorded the absence of carotene when a pleural exudate from a case showing marked carotinaemia was examined.

Esterification of Vitamin during Absorption

From the properties of material isolated from the fat of the chylous fluid it appeared that the vitamin was present in an esterified condition. As the product administered to the patient contained the vitamin as the free alcohol it is apparent that esterification had taken place during absorption. This recalls the observation that cholesterol is esterified during passage through the intestinal wall. (This subject is discussed in the recent paper by Fröhlicher and Süllmann.[18]) It is not unlikely, therefore, that the facilities of absorption, which the possibility of esterification of the alcohol grouping of vitamin A permits, accounts for the relatively much larger proportion of this substance than of carotene which appeared in the lymph after oral administration.

There is, of course, considerable evidence to show that carotene is more satisfactorily absorbed from the intestine when given in natural foods or in solution in oily foods than when administered in highly concentrated forms.

Summary

1. A study has been made of the absorption of vitamin A and carotene administered to a patient suffering from a condition which led to part of the contents of the thoracic duct being diverted into the pleural cavities. Analysis of the fluid removed at intervals from the chest cavities enabled approximate estimations to be made of the amount of vitamin A and carotene absorbed by way of the chyle.

2. It was found that a relatively small proportion of the carotene administered orally could be accounted for by the pigment found in the chylous fluid, whereas in the case of vitamin A the amount recovered was such as to indicate an almost complete absorption.

3. The vitamin administered as the free alcohol was found present in the lymph mainly in the esterified condition, and it is thought probable that the linkage with the fatty acids during passage through the intestinal walls accounts for the much higher coefficient of absorption as compared with that found when carotene was given.

4. Observations on the chylous fluid show that over a range of reaction much wider than that encountered in body fluids no trace either of carotene or of vitamin A passed a dialysing membrane. Both compounds appeared to be present in colloidal form and closely associated with the highly dispersed fat.

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* Since writing this paper our attention has been drawn to a paper by Mann and Peters (*Journ. Clin. Invest.*, 1933, xii, 1031). These workers present evidence, from standing experiments aimed to produce physiological transudation of fluid from the blood stream, that the capillary walls are ordinarily impermeable both to fatty acids and to cholesterol and phosphatides.

K. U. Toverud (*Norsk Mag. f. Laegevid.*, March, 1935, p. 259) carried out twenty-five investigations of the metabolism of fifteen women from the twenty-fifth to the thirty-ninth week of pregnancy, and found that thirteen had a retention of iron below that required by the foetus. All the cases with an iron intake below 13 mg. per day showed a negative iron balance. Even with a daily intake of 15 mg. a negative balance occurred in two instances. The frequency of a negative iron balance during the last three months of pregnancy must therefore be taken into consideration in regulating the diet of the pregnant mother, so that it should contain about 20 mg. iron per day in an easily absorbable form.

A CASE OF CHYLOTHORAX

BY

MURIEL E. BELL, M.D.

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(With Special Plate)

In view of the small number of recorded cases of chylous effusions into the thorax, the following may be of interest. The subject of chylous effusions has been fully treated by Wells[1] and by Powell and Hartley.[2] It is therefore unnecessary to review cases previously reported in the literature.

Clinical Case History

The patient, a woman of 49, complained of shortness of breath on exertion, abdominal discomfort, loss of weight, and gradually increasing weakness over a period of eight months. The chest was found to contain a turbid fluid which, on examination, bore the characteristics of a chylous effusion.

For the patient's comfort frequent withdrawal of fluid from both sides of the chest, and latterly from the abdomen, became necessary. During the fourteen weeks throughout which she was under observation in the ward 971 ounces of chylous fluid were removed, making a weekly average of sixty-nine ounces. This weekly figure falls considerably short of what is believed to be the amount of lymph entering the subclavian vein, even allowing that food intake and digestive processes were at a low level. It seemed justifiable to conclude, therefore, that the block in the thoracic duct was only partial—a surmise which was confirmed subsequently at post-mortem examination.

Hypothesis of Mechanism

The cause of the chylothorax appeared in all probability to be a metastatic deposit in, or in juxtaposition to, the thoracic duct causing partial obstruction, the situation of this block being somewhere above the diaphragm. It was considered that the sequence of events was probably, in the first place, increased pressure in the lymphatics, distension of the lymphatic tributaries, which, being richly endowed with valves, would become nodular. Presumably the second event—namely, rupture—occurred as a result of friction of the pleural surfaces, combined with the negative pressure on the pleural surface of these swellings and an increased pressure inside the lymphatic capillaries. A small valvular opening being present the negative pressure accentuated with each respiration would cause a small amount of chyle to be sucked into the thorax; possibly the opening remained inactive during expiration.

There is no difficulty in explaining the bilateral effusion, and no need to postulate a cross-communication between the two pleural cavities. If the process had taken place on the one side the distress created by the presence of the fluid would deepen the movements on the other side of the chest, and the process would thus be repeated.

It was predicted that, with increase in the blockage of the duct, the positive pressure in the lymphatics of the abdominal cavity would rise to a sufficient height to cause rupture of the abdominal tributaries. It will be observed that chylous ascites occurred some weeks after the chylothorax. It would not have been surprising, from the situation of the growth as found at post-mortem examination, if it had occurred earlier by direct involvement of the lymphatics in front of the lumbar vertebrae. Chylous ascites is reported as occurring more frequently than chylothorax; the reason which suggests itself is that the obstruction occurs more frequently below the diaphragm. It would seem, at least on theoretical grounds, that if the block occurs above the diaphragm the negative pressure of the thorax tends to determine an earlier rupture of the thoracic lymphatics than of the abdominal channels. No chyluria supervened in this case; the urine remained free from chyle and lymphocytes.

Laboratory Findings

The specific gravity of the fluid was 1018. When first withdrawn the fluid usually had a slight pink tint owing to the presence of a few red cells. On standing, however, the natural very pale yellow colour became apparent. The rapidity with which large amounts of fluid collected seemed to exclude the possibility of the effusion being pseudochylous. On the other hand, the volumes being much smaller than those one would expect from the total lymph flow from the thoracic duct into the subclavian vein, it was concluded that the block was only a partial one.

Turbidity and Cytology

There was a uniform turbidity, unaffected by filtration through paper, through a Berkefeld filter, or by centrifugalization. Only when the fluid had been treated by ether did the turbidity disappear; the ether extract was coloured, and on evaporation of the ether a fatty residue was left (see accompanying paper by Drummond, Bell, and Palmer, p. 1208). The percentage of fat, determined by ether extraction after drying with plaster-of-Paris, was variable. It became less as discomfort increased and appetite diminished. When the fluid had stood for a few days a cream rose to the top.

Lymphocytes were always present. The finely emulsified fat gave the fluid a granular appearance under the microscope, but there were no droplets to be seen and no cholesterol crystals.

The fluid did not coagulate spontaneously, except in the case of the first sample withdrawn from each pleural cavity. Subsequent specimens consistently failed to clot. It remained for a long time without undergoing decomposition. The analysis was as follows:

Total solids	6.025
Nitrogen	0.98
Serum globulin	2.07
Serum albumin	2.41
Total protein	4.48
Inorganic ash	0.79
Fat	variable, 0.61, 0.85, 0.18, 0.23
Cholesterol	0.061
Sugar	0.130, 0.106, 0.132

Differential Diagnosis

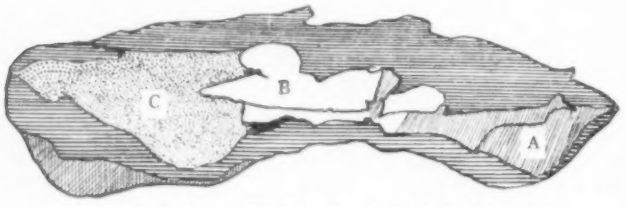
Certain conditions other than malignancy which might have been responsible for the chylous or pseudochylous effusion were excluded because no enlargement of the glands of the hilum was detected on *x*-ray examination, there was no evidence of leukaemic conditions, and inoculation of guinea-pigs was negative for tuberculosis.

Much has been written in discussions on the difference between chylous and pseudochylous fluids, though some of the distinctive features alleged to exist between the two varieties are non-proven. In the case recorded here there were two points which seemed to distinguish this as a true chylous leak—namely, the amount produced and the presence of lymphocytes.

Post-mortem Findings

The thoracic duct was dissected out in the neck and injected with 40 c.cm. of lipiodol. By *x*-ray photograph the duct was seen to be of even calibre throughout its thoracic course (Fig. 1 on Plate). As the injection did not travel back into the smaller pulmonary tributaries the leak points could not be detected, and it was assumed that, as previously suspected, the openings were small and valvular. The duct appeared by comparison with that in other subjects to be dilated, except at the point of entry

into the subclavian vein. Here a probe was passed with some difficulty; a nodule was felt at the junction, and on microscopical examination a collection of tumour cells surrounded and constricted the duct, and was projecting into the subclavian vein (Fig. 2 on Plate). A diagrammatic representation of the specimen is given below.



A, Thoracic duct. B, Growth. C, Subclavian vein.
Diagram of post-mortem specimen (see Fig. 2 on Plate).

The growth was found to be a retroperitoneal sarcoma of the small, round-celled type. It was growing densely in front of the lumbar vertebrae, invading the mesentery and the left kidney from below, and commencing to infiltrate the uterus and ovaries. There was no growth, either visible or microscopical, in the lungs or mediastinum.

A very small amount of fluid had collected in the abdominal cavity, though four days had elapsed since the abdomen had been tapped. This was to be contrasted with the condition found in the thorax, where, in spite of withdrawal of fluid on the day of death, about one and a half pints were present in each pleural cavity. This confirmed the belief that the main factor in determining the chylothorax had been the aspiration due to negative pressure in the thorax.

Summary

A case of bilateral chylothorax followed by chylous ascites is described. The symptoms corresponded with a condition arising from partial occlusion of the thoracic duct by a growth, and the diagnosis was confirmed at the post-mortem examination, when it was found that the junction of the thoracic duct with the subclavian vein was partially occluded by a metastatic deposit from a retroperitoneal sarcoma. The points of leakage in the chest and abdomen were believed to be small and valvular, but they were not definitely located at post-mortem examination either by dissection or by injection of lipiodol.

Grateful appreciation is herewith expressed to Dr. Hamilton Ross for permission to study this case, which was under his care. Dr. H. A. Cookson, pathologist, is thanked for providing laboratory facilities, and for his helpful advice and criticism. Dr. Sharp kindly provided clinical notes and the supply of fluid from numerous tappings. Dr. Paige Arnold and his staff gave assistance by taking the *x*-ray and other photographs.

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An international medical week will be held at Montreux, Switzerland, from September 9th to 14th, to discuss subjects of practical interest to general medical practitioners. The discussions will be introduced by leading authorities from various countries. Sir Henry Dale will be one of the lecturers, the others including Professors L. Rajchman of the League of Nations, E. Bürgi of Berne, J. Holmgren of Stockholm, C. Nicolle of Tunis, Ximenez Diaz of Madrid, H. E. Sigerist of Baltimore, and M. Askanazy of Geneva. The subjects for discussion will be notified later. The fee for membership is 10 Swiss francs, and it will include payment for the report of the "Transactions." Further information may be obtained from the secretary of the International Week, Klosterberg 27, Basle.

TUBERCULIN IN THE TREATMENT OF CUTANEOUS TUBERCULOSIS

BY

H. S. BURNELL-JONES, D.P.H.OXON

(With Special Plate)

Details are recorded in the *Proceedings* of the Royal Society of Medicine for January, 1934, and in the *British Journal of Dermatology and Syphilis* for February, 1934, of the treatment of three cases of cutaneous tuberculosis with tuberculin, the results of which encouraged continuation of the investigation. An account is presented here of three further cases similarly treated (out of a series referred from the skin department of the Royal Northern Hospital), for the purpose of encouraging further work and investigation.

Three tuberculins have been used—T.A.F., B.E., and T.R., obtained from Messrs. Bayer Ltd. In changing from one tuberculin to the other no particular rule has been followed, and no definite evidence has accumulated to indicate that one tuberculin is superior to another. Latterly I have been inclined to modify this statement in favour of T.A.F. and B.E. One fact that stands out pre-eminently—as pointed out by others—is that each case is a law unto itself with regard to intervals between injections, increase and decrease of dose, and the change of tuberculin, and that clinical insight and experience have to be depended upon.

Technique Followed

The site of injection is of importance; patients showing local reactions on the arm will often show no local reaction if injected between the shoulders. The leg appears to be as sensitive as the arm. After experimenting with increases varying from 5 to 50 per cent., results have led to the opinion that 10 per cent. (or thereabouts) is the most satisfactory increase for dosage. The effectiveness of this small increase in skin cases, as compared with that feasible in pulmonary cases, may be due to a smaller quantity of lysin present in the tissue. In contradistinction to pulmonary tissue, the skin is not well flushed with blood, which results in a smaller supply of oxygen and pabulum, and perhaps accounts for relatively slower growth of the bacillus in this situation.

For the small doses a Koch's syringe is most convenient. The varying doses can be measured at the time of injection from the 1 in 10, 1 in 100, and 1 in 1,000 dilutions with the ordinary 0.1 c.cm. pipette graduated in tenths. For doses of 0.2 c.cm. or over the ordinary 1 c.cm. tuberculin syringe, graduated in tenths, is quicker. The dose of tuberculin is first drawn in, followed by the diluting fluid. The diluent is normal saline with 0.2 per cent. phenol, *not* 0.5 per cent. phenol. To the tongue 0.5 per cent. is distinctly appreciable, and in patients hypersensitive to phenol may account for the doubtful positive reaction sometimes seen after an intradermal test, which is followed by negative subcutaneous test injections when a positive temperature reaction might have been expected. No cleansing of the skin is done and no dressing is applied. Distilled water is used in the small metal sterilizer to prevent deposition of calcium salts in the syringes, needles, and pipettes. The glass pipettes are sterilized in a naked flame after rinsing with the distilled water in the sterilizer. The water should not be ejected back into the sterilizer. From time to time it is useful to clear the pipettes with pure nitric acid.

Routine intradermal and subcutaneous test doses are given in all cases. Valuable information is obtained by these preliminary injections as to the degree of allergy and the approximate dose with which treatment should be

begun. The small doses used in the early stage of treatment are given twice weekly, but I have come to the conclusion that in treating cutaneous cases an interval of one week or more is advisable with doses smaller than those used for pulmonary cases. The patients take their own temperatures three times a day, allowing the thermometer to remain under the tongue not less than five minutes. Of existing charts Rigden's is the best (H. K. Lewis and Co.). This chart lasts two months, but a specially designed chart would be better.

If suspension of treatment is indicated, particularly in cases showing high temperature reactions not, so far as can be ascertained, due to tuberculosis—I have had two such cases—injections are still given, but diluting fluid only is used. This allows control of the patient, maintains encouragement, and also enables one to demonstrate whether the rise is associated with administration of tuberculin. Professor Jadassohn writes:

"The reason why the treatment with tuberculin has not yet given better results with tuberculoderms may be that the right method has not yet been found; and this is perhaps because as yet very little is known of the nature of the action of tuberculin. We must not forget that our knowledge concerning this question is still very incomplete. I must once more emphasize that here we have to deal with the very important unknown factors—namely, the reason why the tuberculin allergy develops in such different ways in different individuals. The difficulty of solving this question is enormous; nevertheless, through patient research and industrious observations we must do our best to find its answer."

Case I

Lupus Vulgaris of Face

F.M., a female aged 27, gave a history of fourteen years' duration. The mother first noticed a tiny pimple on the middle of the left cheek. Within a year it had spread over the cheek, notwithstanding medical treatment. She then had zinc ionization for two years, by which time the eruption had reached the left ala. The treatment was given at the School Clinic, Nottingham, every three or four weeks. Severe reactions occurred. She then went to different doctors for about three years. This was followed by the sun-ray and Kromayer lamp treatment at a general hospital, the patient reporting that "it thinned it down a lot, but it continued to spread." There had been continual progress of the disease when she came to the Royal Northern Hospital.

On February 23rd, 1934, a positive reaction followed intradermal injection of 0.0001 c.cm. T.A.F. There was no focal reaction. Treatment was begun with 0.0001 c.cm. B.E. on April 5th. Although this caused no temperature reaction, the patient's chart led me to reduce the dose to 0.00005 c.cm. on April 16th. I got back to 0.00011 c.cm. by June 7th. (Note on June 4th: "Margins still raised, no crusting now, some areas are normal in colour.")

This patient has always exhibited an irregular temperature chart, and on July 5th I changed the tuberculin from B.E. to T.R., giving the same dose (0.0001 c.cm.). The temperature went to 99.8° F. instead of 99.4° with the 0.0001 c.cm. of B.E. On July 13th the patient went to Nottingham for a change, and the treatment was not continued until August 16th, when 0.00001 c.cm. T.A.F. was given. On October 11th 0.00007 c.cm. T.A.F. caused a reaction to 100.6° F., with a very marked track reaction and burning of the face for four days. There was marked scaling. It must be mentioned that pyotropin was applied on September 5th for the first time. On January 24th, 1935, the note reads: "No sign of breaking down; scaling in the lower half of the eruption, where healing is not as advanced as in the upper half."

From September 6th, 1934, she has had weekly injections. Although the doses are so small the track reaction is always very marked. By April 11th, 1935, the dose was 0.000325 c.cm. T.A.F. It must be mentioned that this patient has also had Finsen light treatment since the latter part of October, 1934. The weight in March, 1934, was 8 st. 13 lb.; in April, 1935, 9 st. 8 lb. The skin condition is illustrated on the Special Plate.

Case II

Lupus Verrucosus of Left Hand

W. J. O., a male aged 58, was first seen in May, 1934. This patient had lesions over the metacarpo-phalangeal joint of the left index finger, on the thumb-joint, and on the skin between these areas. A thick, hard, infiltrated pad in the palm prevented approximation of the thumb and index finger. This condition had existed for twenty years, and dated from cutting his thumb with a knife. The patient had rheumatic fever at the age of 6 years, and the heart's action was weak.

Intradermally, 0.0001 c.cm. T.A.F. gave a weak positive reaction. Treatment started on May 24th, 1934, with 0.001 c.cm. B.E. By June 4th the dose had reached 0.003 c.cm. and the patient possessed much more energy. The lesions had paled by June 28th. On July 2nd he had 0.012 c.cm. B.E. The temperature excursions varied between 97° and 98.4°. Treatment has been interrupted in this case by catarrhal attacks. In 1932 the patient spent fifteen weeks in a sanatorium, and the sputum was positive. Notes on August 13th state: "Small nodule to ulnar side of the lesion, over the second metacarpo-phalangeal joint. Red area appeared over the first metacarpo-phalangeal joint. Not feeling well lately, pain over cardiac area with palpitation after food. Sleeps better since having injections, and has gained over 3 lb. in weight."

On August 27th, with the dose at 0.009 c.cm. T.A.F., the hand showed definite improvement. There was less subcutaneous infiltration, and the thumb and index finger could be approximated. This had previously been impossible for two and a half years. By September 20th there was considerable scaling (dose 0.04 c.cm.). On October 1st he reported that the catarrh and nervous condition had disappeared. When the dose reached 0.14 c.cm. T.A.F. the patient had Finsen light treatment in addition, the first application being given on October 22nd. Tuberculin injections were continued biweekly, and the temperature reactions remained between 97° and 98.6°, with very seldom any local reaction at the site of injection. Since the dose reached 0.25 c.cm. T.A.F. on November 5th, the injections have been given once a week. On December 20th he did some hard work without it causing swelling or aching of the hand, which was unusual (dose 0.375 c.cm. T.A.F.). On March 28th, 1935, the dose was 0.525 c.cm. T.A.F. The weight in May, 1934, was 9 st. 10¼ lb.; in April, 1935, 10 st. 1½ lb.

Case III

Lupus Verrucosus of Both Hands

W. M., aged 57, an official killer of tuberculous cattle, stated that the condition complained of had started about August, 1932, on the dorsal aspect of the left hand, over the second metacarpal bone, as a "wart." When first seen, on February 22nd, 1934, the disease extended for two and a half inches above and below the wrist-joint, right across the hand, and around to the thenar eminence. On the right hand there was a wart-like area, two inches in extent, over the dorsal aspect of the fourth and fifth metacarpal bones. This started about June, 1933, and began to get rapidly worse seven months later.

On February 22nd a marked track reaction, raised, and three-quarters of an inch in diameter, followed an intradermal injection of 0.0001 c.cm. T.A.F. Treatment was started with 0.0001 c.cm. B.E. on February 26th; on March 12th, with 0.0009 c.cm., temperature reactions appeared with marked track reactions. By this date the left hand was drying and scaling; improved and painless movement was also possible. On April 30th 0.001925 c.cm. B.E. was given. The local reactions were now becoming less severe, and also the temperature excursions to 100° or over had steadied down to 98.2°. By May 24th the right hand had improved considerably. The eruption had flattened, although it was still warty in appearance. Two areas on the left hand exhibited marked improvement, but there were numerous soft areas with pus underneath, one-eighth to a quarter of an inch in diameter. The patient had been doing a lot of digging. On July 5th the dose was 0.011 c.cm. B.E., and at this time the left hand was more swollen and inflamed; there was also an area of extension the size of a penny around the inner side of the wrist. The lesion on the right hand was much reduced in thickness and was also dry.

About July 21st Dr H. C. Semon scraped both hands, and on September 13th injections were again given, beginning with 0.005 c.cm. T.R., reaching 0.12 c.cm. by December 31st, without track reactions or temperature above 98.4°, and the left hand was much improved, there being no open wound and no pain. After 0.23 c.cm. T.R. on January 31st, 1935, the patient had 0.1 c.cm T.A.F. on February 4th, followed by no track reaction, but a temperature of 100.2° and also slight general reaction. The dose on April 15th was 0.35 c.cm. T.A.F. The weight on February 22nd, 1934, was 12 st. ; on December 17th, 12 st. 11 lb. The skin condition before and after treatment is illustrated on the Special Plate.

This patient reported a similar condition on the left arm of his son, aged 32, appearing just before his own eruption. It extended three inches across the outer side of the arm and three inches above the elbow-joint. It was not red and not raised. The veterinary surgeon treated it, but without change. The son was accidentally shot in September, 1932.

General Conclusion

The answer to the question, "Will tuberculin cure lupus?" is unknown, but the arrest of disease and the improvement seen in these cases are strong indications that the work should be continued. The fact should be mentioned that in one of the earlier cases (not recorded) seven months' treatment was given before any change in the lesions could be recognized. I have heard a doctor condemn tuberculin after using it on one case for three months only. All the cases treated were of long duration before they received tuberculin. It would be of inestimable value if cases could be treated in the early stage ; we are more likely to learn from early cases than from advanced cases.

F. M. (Case I), notwithstanding the fact that allergy was so marked, continued to improve with small doses. The pertinent question asked me by an expert, "If you get improvement with small doses, why use large ones?" naturally comes into one's mind. I only proceed to large doses if the patient tolerates them without rise of temperature or unpleasant general reaction. This tolerance varies. One patient will sometimes feel ill after 0.1 c.cm., whereas another will feel no discomfort after 1.6 c.cm. I do not look upon any particular dose as the maximum for any tuberculin. The most sensitive case I have yet had has only recently come under treatment ; the patient, a female aged 22, has extensive glandular enlargement in the neck and tuberculides on the hands. As little as 0.0000005 c.cm. of tuberculin sent her temperature up to 101° F.

Increase of weight almost invariably accompanies administration of tuberculin. Sooner or later one finds the improvement is not as rapid as at first. I now look upon this as a sign for temporary suspension of treatment, or for extension of the interval: in any case it behoves caution. It does not occur when any particular dose has been reached.

Illustrative of the clinical lessons incidental to tuberculin treatment is a case reported in the issue of the *Proceedings* of the Royal Society of Medicine above mentioned, in which failure to respond to tuberculin in the usual way led to the correction of a wrong diagnosis of "tuberculosis" to the correct one of "syphilis."

Finally, I would call attention to the remarkable differences in the blood films one finds in the different types of cutaneous cases, and suggest that workers should do monthly differential blood counts on each case.

I am indebted to Miss Clark of the *x*-ray department, Royal Northern Hospital, for having the photographs taken, and to Dr. Robert Carswell for advice and assistance in the preparation of this article for publication. Attached is a list of authors whose work I have found useful.

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INTUSSUSCEPTION IN THE ADULT DUE TO TUMOURS

A NOTE ON FIVE CASES

BY

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(With Special Plate)

Intussusception in the adult is of sufficient rarity to render reports of isolated cases interesting ; the occurrence of five in the author's practice in the past year seems, therefore, worthy of report.

Case Reports

CASE I

A male, aged 28, was first seen by me on October 10th, 1933, complaining of abdominal pain, vomiting, and constipation for ten days ; he stated that he had had similar attacks during the previous three and a half years, and that he had passed blood and "slimy stuff" at intervals. During the two days before I saw him he had received three enemata, with one constipated and two "coloured" results. On examination he had a temperature of 97.8° and a pulse of 100. His abdomen was distended and resonant to percussion ; the distension made accurate palpation impossible, but there was a sensation of resistance in the right side. A tentative diagnosis of intestinal obstruction was made, and the abdomen was opened through a right paramedian incision under ether anaesthesia. On opening the peritoneum some blood-stained fluid escaped. An intussuscepted mass was found in the right hypochondrium, small gut entering large gut, and caecum and appendix not being visible. The small gut was enormously dilated, almost to the size of the colon, outside the intussusception. The latter was reduced, when it was found that an originally enteric intussusception had passed through the ileocaecal valve and, carrying this along with it, had intussuscepted the caecum and appendix into the ascending colon. The whole mass was about eight inches long. There was a polyp about nine inches above the ileocaecal junction ; this polyp had occupied the apex of the intussusception. Above the polyp the bowel was dilated to about the diameter of three fingers, while below it was collapsed and contracted to the size of the little finger. As resection and anastomosis did not seem advisable, even if feasible, a McBurney incision was made on the right side, and the polyp, with about three inches of gut on each side of it, extruded and resected after suturing the two limbs to each other and to the peritoneum ; clamps were left on the intestine until the following day. Before closing the abdomen one other polyp was located in the small gut and demonstrated to the assistant. The abdomen was then closed.

Post-operatively the patient did very well, but there was a tendency for the gut of the proximal segment to prolapse through the enterostomy opening, which interfered with spontaneous closure. In mid-November the redundant bowel was resected and the spur clamped. Faeces were passed per rectum on November 24th. On December 9th an attempt was made

to suture the mucosa of the fistula; this failed. The skin in the neighbourhood of the fistula was so unhealthy as to preclude any attempt at closure before January 13th, when, under general anaesthesia, the fistula was excised by an elliptical incision prolonged upwards and downwards, and the abdominal wall dissected into layers; the peritoneum was opened, the opening into the intestine excised, and an end-to-end anastomosis done. The appendix, which was bulbous, was removed; it contained a polypus (Fig. 1) and some shot in its distal portion. The abdominal wall was closed with a small rubber dam drain down to the peritoneum; it healed rapidly, the patient leaving hospital four weeks later.

No attempt was made to remove further polypi as the patient had had quite enough tax on his strength in the closure of the fistula. On February 8th a barium meal follow through was carried out, but the radiologist was unable to obtain any evidence of a polyp down as far as the descending colon; this failure was interesting in view of the definite demonstration of a small gut polyp at the first operation. The patient has remained free from symptoms to date (November, 1934), but his sister, who complained of passing blood and mucus per rectum, has been under the care of a physician; this is again of interest, as a familial incidence of intestinal polyposis has been described.

CASE II

A woman, aged 74, was referred under a tentative diagnosis of appendix abscess on November 6th, 1933. She had suffered from constipation for several months, and for ten days before admission had complained of abdominal pain and vomiting, at first unaccompanied by fever, but when seen the pulse rate was 112 and the temperature 99.4°. The pain, which had been at first generalized, was now referred to the right iliac fossa. The patient was a very fat multipara, and hence accurate abdominal examination was out of the question. There was a feeling of increased resistance, not actually amounting to rigidity, on the right side of the abdomen and tenderness on pressure in the right iliac fossa. She gave no history of diarrhoea or of bloody stools; rectal examination was negative. She had definite auricular fibrillation.

Under ether anaesthesia the abdomen was opened by a Davis incision. The small gut was intussuscepted into the large gut for about eight inches. The intussusception was reduced, and a carcinoma of the caecum was found at the apex of the intussusceptum. The bowel was in good condition. The caecum, three inches of ascending colon, and about four inches of ileum were resected by Mikulicz's method, a tube being inserted in the ileum; the "gun-barrel" was stitched to skin as well as to the peritoneum, as there was considerable tendency to retraction. For ten days the patient progressed favourably, and then cardiac failure developed and she died on the twelfth day after operation.

CASE III

A woman, aged 35, had complained for "over a year" of attacks of pain, vomiting, and constipation. For nine days prior to admission she had general abdominal pain, vomiting, and absolute constipation. On examination the abdomen was distended and a slightly tender mass was palpable in the right lumbar region. Under ether anaesthesia the abdomen was opened by a right paramedian incision; an enterocolic intussusception was delivered and reduced. A tumour, which had occupied the apex of the intussusceptum, was palpable within the caecum on its outer side: the caecum, with about three inches of ileum and four inches of the ascending colon, was resected by Mikulicz's method, the mass being exteriorized through a right McBurney incision. The patient died thirty-six hours later of a pulmonary embolus. The tumour was a lipoma of the caecum.

Note.—The tumour, which is shown in Fig. 2, was greyish-yellow in colour, and it was attached to the outer wall of the caecum by a pedicle; on section it had a firm, fibrous capsule beneath the coating it derived from the caecal mucosa, and presented the typical appearance of a lipoma. Lipomata of the gastro-intestinal tract are rare; 242 cases are reported by Poston (1934), of which eighty occurred in the caecum; there was intussusception in eighty cases altogether, of which six were caecal. From these figures intussusception is no more likely to complicate caecal lipomata than similar tumours in any part of the intestine.

CASE IV

A man, aged 41, was first seen on April 14th, 1934, when he gave a history of pain in the hypogastric and left iliac regions accompanied by constipation and the passage of blood and mucus in the stools for four months. On rectal examination blood and mucus were found, also a soft mass, which was only just palpable by the finger-tip; no attachment to the rectal wall could be felt by the finger. The patient was prepared for sigmoidoscopy, but after the enema no mass was palpable in the rectum and he felt relieved. He insisted on returning home on April 17th, but came back a week later with pain, constipation, frequent passage of blood and mucus per rectum, and a tendency to vomit. The mass was again palpable per rectum, but abdominal examination, except for some distension, was negative. A provisional diagnosis of polypus of the colon or intussusception was made.

The abdomen was opened on April 26th by a left paramedian incision under ether anaesthesia. An intussusception of the pelvic colon into the rectum was reduced, and a small scirrhus of the pelvic colon was found just behind the apex of the intussusceptum. After mobilization, the growth, with a loop of colon, was exteriorized through a left McBurney incision, and the two limbs of the loop stitched together; the primary incision was closed. Three days later the loop was resected. Four weeks later the fistula was about the size of a goose quill, and faeces were being passed by the rectum. The patient was sent home, hoping for spontaneous closure, but after six weeks he returned; the fistula was of the same size and no faeces were being passed per rectum. Under general anaesthesia the fistula was excised. The upper end of the lower segment was found completely closed, while there was a minute opening in the upper segment; both ends of the colon were opened, and an extraperitoneal end-to-end anastomosis performed. The wound was closed layer by layer and a dam drain left down to the suture line. The patient left hospital eleven days later in apparently perfect condition. The interesting point in this case is that the growth was about one inch behind the apex of the intussusceptum, not at the apex, which was formed by a spastic ring in the colon, apparently due to irritation from the growth.

CASE V

A man, aged 50, gave a history of constipation with the passage of blood and mucus per rectum for some months, with attacks of abdominal pain and vomiting. The most severe of the attacks had begun three days before admission, and for two days he had also complained of difficulty and pain on micturition. On examination the abdomen was negative except for slight distension; a hard, craggy mass was palpable per rectum. The finger could not reach sufficiently high to determine its attachments to the bowel wall, but could be passed around between the mass and the rectal mucosa. In diagnosis intussusception was almost ruled out as improbable in view of the previous four cases, and a carcinoma of the rectum was diagnosed.

The abdomen was opened under general anaesthesia by a left paramedian incision with a view to performing Stage 1 of an abdomino-perineal operation. There was a small amount of blood-stained fluid in the peritoneal cavity. A mass, the size of a child's head, was felt almost filling the pelvis, and identified as a colo-rectal intussusception. This was reduced as far as possible but not completely, when a growth was felt in the iliac colon. The loop, with the growth at its apex, was mobilized and exteriorized through a left McBurney incision, and about nine inches resected as in the preceding case. Despite crushing of the spur the fistula refused to close, and five weeks after the primary operation the fistula was excised and an end-to-end extraperitoneal anastomosis done. The patient left hospital a fortnight later (Figs. 3 and 4 show the specimen removed.)

Discussion

The report of five such cases would give a wholly erroneous notion of the frequency of this condition, since in the same period I have only operated on nine intussusceptions, one of which, in a child, was associated with a polypus. This collection is due to coincidence analogous to the dictum, which has almost attained the standing

of a natural "law," that "interesting cases always occur in pairs." The most recent report of such an intussusception is by Poston (1934), from which it appears that the condition is much rarer in Oldham than here. He quotes a total of thirty-eight cases in ten years in hospitals serving 250,000, while about seventy cases have been operated upon in Galway in hospitals serving about 180,000 during the same period.

From the standpoint of pathogenesis intussusceptions may be considered in two groups. In the first are those associated with a tumour, often polypoid, situated at the apex of the intussusception, in which the polyp has been dealt with by the bowel below it as if it were the usual intestinal contents, and hurried along the gut, dragging with it the intestine above.

In the second group are those cases in which there is no pathological change demonstrable in the bowel, or in which the tumour is behind the apex of the intussusception. In this group there has been considerable apparent difficulty in visualizing the mechanism of commencement of intussusception. In this connexion there are two facts which it is necessary to recall: (1) transient intussusception is a naturally occurring movement in the intestine, as shown by Alvarez's cinematographic studies; and (2) it is easy to produce intense local spasm, causing a veritable constriction ring in the intestine either by simply pinching it with a forceps (as I have repeatedly done in the cat and rabbit) or by electrical stimulation (Nothnagel). This constriction ring remains for a considerable time, and it is easy to visualize it as passing into the relaxed distal segment of gut and being grasped there and hustled along as if it were intestinal contents, and so forming the apex of an intussusception. Nothnagel actually claims to have seen an intussusception develop in this fashion during a stimulation experiment. Apparently there is no such spastic ring at the apex of the normally occurring intussusceptions, which accounts for their temporary character. Again, it is reasonable to suppose that the irritation due to a tumour in the bowel, a particle of undigested food, etc., was as adequate an irritant as the momentary pinch by a forceps in causing such a spastic ring to form.

So much has been written about the treatment of intussusception that only brief comment is desirable. It is now almost generally accepted that in face of a definite diagnosis palliative treatment has no place. In the adult, however, the diagnosis is rarely definite and enemata are often used and, as in Case IV, may cause reduction, though the intussusception may recur. When this condition is found at operation it should be reduced as far as possible, and then the extent of bowel to be resected considered; resection is, of course, not called for if the bowel is viable and no tumour is present.

In cases such as the five described I believe resection should always be done, and usually by Mikulicz's method. This latter technique seems to me preferable, for apart from the fact that the disparity in size between the dilated upper and the collapsed lower segment of gut usually renders end-to-end anastomosis impossible, the intestinal wall is so unhealthy as to be but poor material for suture, and the toxic contents of the obstructed bowel are a sorry mess to allow to pass over a recent suture line, even in healthy gut. Also in such cases some form of enterostomy is nearly always desirable, and the condition of the patient often calls for the quickest possible conclusion to the operation. In very bad cases Mikulicz's method may be shortened by exteriorizing the gut and making an enterostomy in the upper segment, leaving the resection of the loop to be completed later; in practice resection after exteriorization requires no extra anaesthesia and adds so little time that it is hard to imagine a case so bad as to need this division. Unfortunately this technique is not applicable to children, in whom a faecal fistula is said to be invariably fatal, while an occasional patient recovers after resection; in a child with a non-gangrenous intussusception due to a polyp it might be suggested that after reduction an enteropexy should be done to prevent recurrence, and the removal of the tumour be left to a later date.

No attempt is made to quote extensive literature; Poston gives a bibliography, mainly, however, of intestinal lipoma.

Summary

1. Five cases of intussusception in the adult due to tumour are described.

2. An attempt is made to explain the mode of origin of intussusception.

3. Reasons are given for preferring Mikulicz's resection in such cases.

Note.—It is a matter for regret that specimens from Cases I, II, and IV were mislaid in the Pathology Laboratory.

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ULCERATIONS IN THE STOMACH AFTER ADRENALECTOMY

BY

J. FREUD, D. LUWISCH, AND F. OESTREICHER

(With Special Plate)

Gibelli,[1] Elliott,[2] Stuart and Rogoff,[3] and others have described the occurrence of gastric ulceration after adrenalectomy in the dog and the cat. Similar ulceration has been noted following extirpation of the pituitary or lesion of the hypothalamus (by Cushing, and by Keller, Hare, and D'Amour[4]). The problem so raised is, in our opinion, sufficiently important to justify the presentation of our own confirmatory findings.

Experiment

In the last five members of a larger series of dogs in which two-stage bilateral adrenalectomy had been performed, we directed our attention to the state of the alimentary mucous surfaces. The animals were sectioned immediately or almost immediately after death, which occurred, after heavy prostration, within twenty-four to thirty hours of the second operation. The interval between the removal of the first and second adrenal varied from twenty to thirty-five days. One of the five animals was kept alive on cortin for two months. Cortin was then withdrawn, despite which the dog survived, and in the course of the next three months developed a colossal adiposity. Incomplete adrenalectomy was suspected, and an "autopsy" performed *in vivo* under very cautious ether narcosis, despite which the animal succumbed in a manner characteristic of adrenal insufficiency. Exploration of the abdominal cavity failed to reveal any residual adrenal tissue. In the gastric mucosa three or four slight surface depressions were visible macroscopically without any actual ulceration, but they were obviously thinned in comparison with the surrounding tissue. The picture rather suggested healing of previous ulcers.

The remaining four animals all showed gastric mucosal defects of varying size and number. The largest varied in diameter from 3 to 7 mm., the depth usually corresponding to the thickness of the mucosa, though sometimes only the superficial layer was dehiscent. The deeper ulcers resembled a classical gastric ulcer (ulcerus rotundum),

being of circular outline with almost no peripheral thickening.

We present (see Special Plate) a photograph of a pylorus from this series, showing five mucosal defects, of which two are fully developed, round ulcers, and three are in the incipient stage. Histologically the largest ulcer shows complete absence of mucosa at the centre, the surface here consisting of muscularis mucosae. Towards the periphery there is a sharp margin of thin mucosa without any visible infiltration or elevation. Passing out from the margin the mucosa becomes gradually thicker, merging into the normal surrounding surface. Microscopically, therefore, the ulcer is closely reminiscent of the known pathological findings in the human subject.

SUBJECT

The animal was a long-haired female, initially weighing 7 kg. Operation No. I took place on October 31st, 1934, Operation II on December 4th, under 1 mg. morphine per kilogram body weight and light ether narcosis. Recovery was rapid, consciousness returning ten minutes after leaving the table. During the first twelve hours she moved about spontaneously; at twenty hours prostration was manifest, but could be relieved temporarily by adequate treatment. At thirty-six hours she died, and was sectioned almost immediately.

Conclusion

We refrain from further speculations concerning these data, and wish only to stress their possible bearing on the aetiology of gastric ulcer. The hypophyseo-adrenal interrelationship, of which considerable evidence is recorded, appears significant in this connexion. It remains an open question, (*a*) whether the ulceration is due primarily to a hypophyseal or to an adrenal deficiency; or (*b*) whether substances derived from one or both these organs may have therapeutic value.

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Professor T. Madsen (*Ugeskrift for Laeger*, February 14th), who is director of the State Serum Institute in Copenhagen, has organized, under its auspices, a tuberculosis survey of Denmark. The twenty-eight tables he publishes show that the frequency of positive tuberculin reactions to the Mantoux test varied greatly in different parts of the country. In one area, for example, only 7 per cent. of the children aged 7 gave a positive reaction, whereas in another area between 50 and 60 per cent. of the seven-year-old children did so. In certain areas the absence of rarity of bovine tuberculosis coincided with a comparatively low percentage of positive reactors. There were also areas in which bovine tuberculosis was common, and the proportion of positive reactors was comparatively high. But Professor Madsen is loath to draw final conclusions with regard to the relationship of a high bovine tuberculosis rate to a high rate of positive tuberculin reactors, considering that reliable data as to the incidence of bovine tuberculosis throughout Denmark are still lacking. In some areas a low rate of tuberculin reactions coincided with a high tuberculosis death rate; and in one area in which the rate of positive reactors was peculiarly high the tuberculosis death rate was one of the lowest in Denmark. But here again no dogmatic conclusions are drawn. One of the few points on which the author is emphatic is that these investigations are one more nail in the coffin of the old notion that as a rule the tuberculosis of puberty and adult life is the sequel to an infection in infancy and earliest childhood. He adds, more or less in parenthesis, that of the 1,200 doctors qualifying as such between 1920 and 1933 in Denmark, about 1 per cent. have died of tuberculosis, and about 5 per cent. have definitely suffered from it.

Clinical Memoranda

Treatment of External Biliary Fistula following Injury to Common Bile Duct in Cholecystectomy

(With Special Plate)

Cases of biliary fistula following accidental section of the common bile duct during the operation of cholecystectomy would appear to be rare. At least, cases of this nature are rarely recorded. To record one might be regarded as reflecting badly on the operator's skill; but accidents will occur from time to time, even with the best of operators.

CASE REPORT

The patient, a woman aged 65, was admitted to hospital on January 7th, 1934, suffering from gall-stones. On January 17th she was operated upon, a right paramedian incision being employed. The omentum was wrapped round the gall-bladder, which was much thickened and contained many gall-stones. It was separated from the gall-bladder with gauze, and cholecystectomy performed. The common bile duct was accidentally cut across. End-to-end anastomosis of duct ends over a piece of rubber tubing was carried out, the tube being removed before the anastomosis was complete. Two corrugated rubber drains, one from the site of anastomosis of the duct and one from Morrison's pouch, were brought out through the abdominal wound. The wound duly healed, the patient's jaundice disappeared, and she became fit and well. She was discharged on February 28th.

She progressed satisfactorily at home and enjoyed good health. About the end of May an external biliary fistula, which discharged clear bile, developed at the lower end of the wound. She reported to me on June 4th, and I injected lipiodol into the fistula to ascertain whether or not a connexion existed between the common bile duct and the duodenum. No lipiodol appeared to pass into the duodenum. (See Special Plate.) As the patient's health seemed in no way impaired by the fistula, and as the latter was of recent formation, it appeared advisable to carry on with conservative treatment for several months, so that a well-marked track might be allowed to develop. This would allow of more easy dissection of the fistula from the tissues through which it passed if transplantation into some part of the gastro-intestinal tract was deemed necessary.

IMPLANTATION OF FISTULA IN STOMACH

The patient reported for admission to hospital on September 28th, 1934. The flow of bile from the fistula had recently become more profuse, and this state of affairs was rather uncomfortable for the patient. The escaping bile was collected and given to the patient per rectum. After a week she developed jaundice, and as further administration of bile did not result in any diminution of the jaundice this procedure was discontinued. On October 17th a blood transfusion was carried out to counteract the tendency to bleed when operation for closure of the fistula was performed. Two days later the abdomen was opened by a right paramedian incision. A flexible probe was carefully passed along the fistula down towards the bile duct, and the tract excised from the anterior abdominal wall. There were dense adhesions round the lower surface of the liver and the duodenum. The common bile duct was stenosed and fibrosed at site of the former anastomosis. It was impossible to excise the stenosed portion and make a second attempt at end-to-end anastomosis of the two remaining parts of the duct. Furthermore, even if it were possible, there were no better prospects of success than on the former occasion. To implant the proximal portion of the common bile duct into the first part of the duodenum was likewise impossible, because of the short length of duct to work with and the immobility of the duodenum owing to the dense adhesions present.

The only alternative was to implant the biliary fistula into the stomach. This was done into the anterior surface of the pyloric end, and a piece of omentum brought up to the site

of anastomosis to help obtain a secure junction. In passing the probe along the fistula I inadvertently punctured it, so that I had to pass a rubber drain to the site of puncture. The abdominal wound was then closed. On removal of the drain a little bile continued to pass for a week or two, and finally ceased. Shortly afterwards the jaundice disappeared and the stools became normal. The patient was discharged fit and well on December 12th, 1934. She has reported at intervals, and is enjoying normal health.

No originality for the operation is claimed. The case is recorded to demonstrate that such a procedure can be adopted with safety and great relief to the patient.

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Lateral Dislocation of Wrist

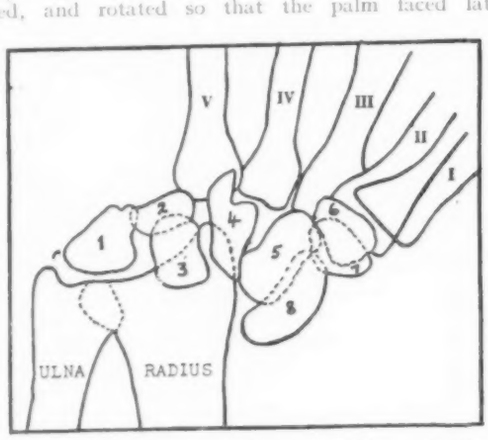
(With Special Plate)

Dislocation of the wrist is a comparatively rare form of injury, and the case recorded below presents several unusual features. It shows how marked an anatomical displacement can occur at the wrist without associated gross fracture. The only demonstrable bony injury is a very minute flake off the cuneiform bone. Radiographic appearances suggest that the dislocation is lateral, the displacement being radial—a form apparently hitherto not described. Even if this case presents only another variety of dorsal dislocation it is certainly an extremely exaggerated form of this interesting condition.

CASE REPORT

A man, aged 45, while engaged in unloading a coal car, stretched out his right arm to protect himself from a slipping mechanical shovel. In warding off the blow his hand assumed the position of extension and adduction—perhaps to an exaggerated degree. He was struck on the palmar surface of the hand towards the ulnar side. He was aware of sudden pain in the wrist, and his hand assumed a deformed position.

When seen within half an hour of the injury the right hand was grossly deformed, the hand being abducted, extended, and rotated so that the palm faced laterally.



Diagrammatic representation of *x*-ray before reduction. I–V represent the metacarpals. The carpal bones are: 1, semilunar, 2, pisiform, 3, cuneiform, 4, unciform, 5, os magnum, 6, trapezium, 7, trapezoid, 8, scaphoid. The minute fracture is seen between the ulnar styloid and semilunar bone.

The ulna was markedly prominent. The radial styloid could not be felt. There was diffuse general tenderness, and no movements were possible at the wrist. The fingers were flexed, and movements of flexion and extension limited. At first sight the appearance suggested a Colles's deformity.

The *x*-ray photographs (see Special Plate) present a remarkable appearance. The radius and ulna are normal. In the antero-posterior view the semilunar bone retains its usual position in the carpal picture; the rest of the carpus is dislocated radially. A minute flake has been torn apparently off the cuneiform bone; no other fractures are visible. In the lateral view the semilunar is again seen to be in its normal place and unrotated; the os magnum instead of occupying the lunate concavity lies somewhat dorsal to it.

Reduction under gas anaesthesia was simple. Moderate traction with adduction of the hand readily reduced the deformity; this was accompanied by an audible click. There was no apparent tendency for recurrence of the dislocation after reduction. Moulded plaster anterior and posterior splints were applied to the wrist in the cock-up position. Post-reduction radiography showed restoration of normal anatomical relationship.

Using Speed's[1] classification of carpal dislocations this case falls in the group of perilunar dislocations of the wrist—that is, a mass dislocation of the carpus about the semilunar bone, the latter retaining its normal position. He describes only dorsal and volar types. The case indicated here appears to be a lateral form. The mechanism of the dislocation is easy to understand. The force was applied with the wrist extended and adducted. It was probably dorsally dislocated at first, but continued action of the applied force produced a lateral position. The prognosis appears to be favourable. Uncomplicated dislocations, presenting no difficulty in reduction, treated early, usually give good results. Progress in this case has been satisfactory to date.

My thanks are due to Mr. S. B. Chambers, honorary surgeon at this hospital, for permission to publish the case, and to Dr. D. V. Rice, honorary radiologist, for his kind loan of the *x*-ray plates.

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REFERENCE

[1] Speed: *Fractures and Dislocations.*

A Case of March Foot (Pied Forcé)

(With Special Plate)

The following case of march foot, with evidence of fracture near the base instead of the neck of the bone, seems to be worth recording.

A young man, aged 17, a tailor's assistant, entered hospital on September 25th, 1933, for investigation of pain on the top and along the inner border of the left foot. He also stated that the foot occasionally gave way under him. He played football regularly, his last game having been two weeks before he was admitted to hospital. No history of injury was obtained.

On examination a swelling was found over the base of the second metatarsal bone, and tenderness noted on pressing together the metatarsal bones. There was a "bunion" on the left foot. The Wassermann test was negative. *X*-ray examination showed signs of a ring of callus on the shaft of the second metatarsal near the base, and callus apparently extended along the distal part of the shaft. No sign of fracture was visible. The youth left hospital about two weeks after admission. He refused to return for further *x*-ray examination, but when interviewed one evening four months after his discharge said he had been working since he left hospital. He made no complaints concerning his foot, and clinically no abnormality could be detected. He had no treatment as far as is known.

Interesting features of the case were: (1) the patient's ability to play football with a fractured metatarsal bone; (2) the fracture was near the base of the bone; and (3) the apparent cure in the absence of treatment.

I am indebted to Mr. Ivor Lewis, medical superintendent of the North Middlesex County Hospital, for permission to publish this case.

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Reviews

THE TREATMENT OF FRACTURES

When Dr. LORENZ BÖHLER's book was first produced six years ago it was said to be the outcome of the experience of nineteen years in the treatment of 10,000 cases of fracture, the study of 70,000 *x*-ray pictures, and the dissection of 300 fractures of the long bones. We owe to Professor HEY GROVES a translation of the fourth German edition,[1] and he has thereby placed all English surgeons in his debt. The Fracture Clinic over which Lorenz Böhler presides in Vienna is a unique institution. Its reputation is world-wide, and this volume, consisting as it does of a description of the methods there employed and the results obtained, will be welcomed in surgical clinics throughout the world.

The volume opens with a general discussion of the principles of fracture treatment, and in this the chief stress is rightly laid upon the importance of the accurate correction of displacements, and upon the maintenance of this correction after reposition. The opinion is expressed that fixation must be maintained until union is complete, and that fear of stiffness in the joints must not allow the fixation splinting to be removed too soon. Severe and lasting disablement will only follow long-continued immobilization when the reduction of the deformity has been inadequate, and absence of deformity is always the first condition of repair. It is essential, in Böhler's opinion, that active movements should be commenced without delay, when, if a broken joint has been accurately replaced and secured in good position by effective immobilization, a freely movable joint will result. Massage and passive movements cannot replace active movements in the restoration of function. To quote Böhler's own words:

> "If a broken joint is accurately replaced and secured in good position by effective immobilization, and if the broken limb is forthwith actively used, then a freely movable joint results: if, however, from the first day massage and passive movements are applied, the joint becomes stiff."

Such a dogmatic statement might suggest that after-treatment is to be left to the patient, but this is by no means the case, and the very next section discusses after-treatment of a vigour and detail such as can only be achieved in a special clinic. Moreover, the after-treatment is specially directed to the avoidance of those disabilities which experience has shown as likely to occur, and it is controlled by repeated *x*-ray examination and by methods of measurement and registration which can leave no doubt at all as to the progress of the case. A detailed account of apparatus and dressings, with a section on local anaesthesia, is followed by a discussion on the treatment of open fractures and of infected fractures. In many of the cases described the average surgeon would advise immediate amputation, and without the very special resources of the clinic he would probably be wise; yet here photographs and diagrams show that the impossible has been achieved, that union has been obtained, and an apparently perfect functional result.

Of even greater interest is the detailed discussion of individual fractures, to which the main bulk of the book is devoted. Every type of fracture is discussed in the fullest manner, including its causation, diagnosis, complications, and treatment. In each instance the various points are illustrated by *x*-ray photographs, thumbnail sketches, and actual photographs of the patient. It is, of course, impossible to refer to these in any detail, but we were especially struck by the cases of fracture of the spine, many actually involving the cord, and yet treated in many instances with brilliant success. To put a patient through the exercises described a few days after the application of a plaster jacket for a fractured spine requires some hardihood and great confidence on the part of the surgeon in the success of his technique. We can give no higher praise than to say that after reading this article we are prepared to share his confidence. Fractures of the neck of the femur are treated with equal originality, and apparently with equal success, but the interest of the book is by no means limited to these more dramatic cases. Nothing could exceed the detailed care given to fractures of the phalanges and to the many varieties of fractures occurring in the neighbourhood of the ankle-joint, and the author fully justifies the space devoted to these common injuries.

Those who have followed the work of the Fracture Committee set up by the British Medical Association, and who have read its report, will be prepared to recognize the value of treating fractures in a special clinic under expert care. In view of that report and of its drastic findings, nothing could be more apposite than the appearance of this book, and we venture to express the opinion that no one is justified in engaging in the treatment of fractures who has not studied Dr. Böhler's work, and has not realized the immense advances which he and his colleagues have achieved by organized surgery.

[1] *The Treatment of Fractures.* By Dr. Lorenz Böhler. Fourth English edition. Translated from the fourth enlarged and revised German edition by Ernest W. Hey Groves, M.S., M.D., F.R.C.S. Bristol: John Wright and Sons, Ltd.; London: Simpkin Marshall, Ltd., 1935. (Pp. 578; 1,059 figures. 42s. net.)

MALE IMPOTENCE

There are few subjects that require for their handling a wider range of understanding than the subject of impotence. Moreover, the fact that there are so many gaps in our knowledge of the sexual function in normal people makes the treatment of aberrations from the normal still more difficult. It is not surprising, therefore, that the author of "Sexual Impotence in Man"[2] confesses in his introduction that he makes no claim to have thrown any clear light on the subject. The variety of physical and psychological elements which combine in the carrying out of the sexual act and their obvious interdependence render their study, if not impossible, very difficult. Although this work claims no finality it shows clearly that slow progress is being made in the understanding of sexual failure in the male. Those who treat it are realizing that more often than not impotence is neither a purely physical nor a purely psychological derangement, but rather a complex entity in which both elements play a part.

In order to treat sex disabilities it is necessary to understand as much as is possible of the physiology and anatomy of the sexual act, and Dr. PALAZZOLI devotes the first part of the book to a description of the different stages of coitus, the nervous mechanism of the sexual act, virility, and the physiology of sex. Part II deals with the pathology and psycho-pathology of different varieties of impotence, and Part III with treatment. The fact that only a third of the book actually deals with therapeutics is in itself a confession that, in spite of advances, the treatment of impotence is still in an elementary stage. There are writers who pin their faith to physical methods of treatment, and there are others who regard impotence as a functional condition dependent on psychological causes, and therefore requiring some form of psycho-therapy for its cure. Palazzoli shows his understanding of the subject by holding a balance between physical and psychological treatment. He gives clear indications of what drugs have proved most successful in his hands,

[2] *L'Impuissance Sexuelle chez L'Homme.* By M. Palazzoli. Paris: Masson et Cie. 1935. (Pp. 284. 45 fr.)

and more precisely what drug is best suited to a particular variety of sexual disability. But drugs form only part of the therapeutic arsenal, and the conditions underlying impotence are so widespread and interconnected that a therapeutic measure as improbable as cauterization of the inferior turbinates has sometimes resulted in a cure. This being so, it cannot be wondered at that the quack and the charlatan occasionally succeed when the conscientious and scientific urologist has failed.

Dr. Palazzoli illustrates his work by including case sheets from his own practice, and also a description of the patient who was successfully treated by cauterization of the turbinates. What makes this case more surprising is that it was never explained to the patient that the treatment might affect his genital trouble. It was merely suggested that cauterization would improve the condition of his nose. A possible explanation of this therapeutic triumph is that cauterization may have improved the general condition, producing that state of well-being in which sex is most likely to flourish.

To those desiring a comprehensive and balanced review of sexual impotence in the male this book can be strongly recommended.

SICK CHILDREN

The fact that *Nursing and Diseases of Sick Children*,[3] which was first published five years ago, has now reached a second edition shows that it has met a want on the part of nurses training for the Certificate for Sick Children's Nurses, issued by the General Nursing Council. Whether it is either desirable or necessary that such a want should exist is, as we pointed out when reviewing the first edition, another matter, and it is certainly rather ironical to find a quotation from Professor Czerny—"The best nurse is not the one that knows most but the one that observes best"—on the title-page of a book which is designed so to fill up a nurse with "knowledge" that she must have little time or energy left for observation. For this attempt to make nurses into amateur paediatrists, however, the General Nursing Council, and not the authors, are to blame, and so long as an extensive knowledge of the diagnosis, pathology, and treatment of diseases of children is expected of them this book is well fitted to impart it.

In the present edition the whole work has been revised and partly rewritten, and some new illustrations have been added. The editor (Dr. ALAN MONCRIEFF) and his contributors have done their work with care, and the information given is for the most part clear and practical, with a commendable brevity and freedom from overlapping. The book can be recommended not only to nurses but, even more, to practitioners.

A NEW MEDICO-LEGAL TEXTBOOK

Edinburgh is one of the few centres of learning in these islands where forensic medicine as a specialty is admitted to exist. Any work written by an Edinburgh lecturer must therefore command respectful attention. The book by Dr. DOUGLAS KERR[4] comes up to the standard of learning and originality which is expected from that city. Dr. Kerr has aimed at giving the practitioner who is in doubt about a medico-legal problem a clear-cut line of action. He starts with a general chapter on the General Medical Council and professional etiquette and secrecy. He then deals simply and clearly with the legal procedure which a general practitioner ought to follow in cases of death in England and in Scotland, and gives instructions for performing a post-mortem examination. Such information is of great value to the ordinary doctor, who is often quite unfamiliar with the subject. Dr. Kerr's treatment of what one might call the "corpse," or criminal, side of legal medicine compares very well indeed with the work of previous writers. It is a little difficult, however, to see why, in a chapter on wounds and wounded, he should include his remarks on the liability of the doctor for negligence and for operations without consent. He has some particularly illuminating, though repulsive, photographs of various injuries. He deals adequately with toxicology and asphyxia. What he has done he has done admirably: any criticism of the work must be on the grounds of omission. The general practitioner will find nothing to help him in such problems as persistent malicious slander by an ex-patient, or partnership quarrels—roughly speaking, the civil as opposed to the criminal side of forensic medicine. Doubtless Dr. Kerr wished to keep his book within a certain compass, and considered the criminal aspect of the matter more important to the general practitioner; but experience shows that the ordinary doctor is at least as much concerned with civil problems as with death and wounds, and that this need has not been sufficiently recognized by medico-legal writers.

PARASITISM AND DISEASE

Professor THEOBALD SMITH, who died at the end of last year, had attempted in the Lowell Lectures of 1909 and the Herter Lectures of 1916, to bring together all alien invaders and parasites of the animal body and deal with them and the disturbances they produce under some unifying principle. The Vanuxem Lectures were a last attempt at showing the relation between disease and parasitism in its broadest manifestations. These lectures are published under the title *Parasitism and Disease*.[5] The life of parasites is divided into four critical stages or periods: (1) their entrance into or invasion of the host; (2) their multiplication within the body of the host; (3) their discharge, emigration, or excretion outwards; and (4) their active or passive transfer or transmission to another host. These stages are discussed with a great wealth of examples derived from cases of parasitism in a wide range of animals. The result is a collection of extremely interesting information, but there is little evidence of any unifying principle. The author was somewhat handicapped by the fact that the lectures were intended for an audience not yet conversant with the problems of disease. They would have more value for those with a fuller acquaintance with the problems of disease, helping them to overcome the tendency to think of parasitism purely as a matter of disease in men and the higher animals.

In the earlier chapters Professor Theobald Smith is inclined to concentrate on the invader, to which the host is in most cases merely a means of continuing the existence of the parasite species—a process which may be handicapped or actually checked by disease in the host. The toxin of the diphtheria bacillus is a "defensive weapon" to enable it to maintain its position in the throat, and the release of endotoxins is the result of too vigorous attempts on the part of the host to destroy the invader. However, the final chapters deal with the reverse side, the reaction of man to these invasions and his attempts to check them.

[3] *A Textbook on the Nursing and Diseases of Sick Children: For Nurses.* By various authors. Edited by Alan Moncrieff, M.D., F.R.C.P. Second edition. London: H. K. Lewis and Co., Ltd. 1935. (Pp. xvi + 580; 112 figures. 15s. net.)

[4] *Forensic Medicine.* By Douglas J. A. Kerr, M.D., F.R.C.P.S., D.P.H. London: A. and C. Black, Ltd. 1935. (Pp. 311; 30 figures, 4 coloured plates, 40 half-tone plates. 15s. net.)

[5] *Parasitism and Disease.* By Theobald Smith, Director Emeritus of the Department of Animal Pathology, Rockefeller Institute for Medical Research. Princeton: Princeton University Press; London: H. Milford, Oxford University Press. (Pp. 196. 9s. net.)

BEE VENOM THERAPY

Bee Venom Therapy,[6] by Dr. BODOG F. BECK, is a monograph dealing with a somewhat mysterious branch of therapy. There is an age-old tradition in Central Europe that bee stings will cure arthritis, rheumatism, etc. Various medical men reported successes with bee sting therapy in the middle of last century. A clinic for treatment by bee stings was maintained for many years in Graz by Dr. P. Terc, and in a report published in 1912 cures were claimed in 544 cases out of 660 treated. The isolation of bee venom is attended with great technical difficulties, but in 1928 two injectable bee venoms free from albumin were prepared—namely, "apicosan" and "immenin," and since then other preparations have been put on the market by various British firms. Dr. Beck points out that rheumatic affections are the commonest cause of disability and one of the chief causes of human suffering, and that medical treatment has hitherto failed signally. He gives the following quotation as indicating the attitude of many of the sufferers: "Doctor, you don't know what causes arthritis, you don't know how to cure it—all you know is that I have it." The author has extensive personal experience of the use of bee venom; he gives full details regarding its application, and is enthusiastic (perhaps unduly so) about its value.

Notes on Books

Modern Treatment of Fractures,[7] by H. WALDO SPIERS, gives a brief outline of the modern treatment of fractures. It opens with a series of notes on the general principles of fracture treatment, such as the emergency care of simple and of compound fractures, the principles of fracture reduction, and the construction of elementary appliances. This is followed by applications to special fractures and dislocations throughout the body. An attractive feature of the book is the series of thumbnail sketches which show at a glance the nature of the fractures discussed and the principles involved in their treatment. Though the discussions are very brief they are full of suggestive points, and while the volume can scarcely be regarded as a textbook on fracture treatment it will well repay perusal by anyone engaged in handling fractures.

THEO B. BEUST'S monograph on *Dental Histology and Embryology*[8] embodies the results of thirty years' work. Professor Beust is well known to the dental profession, and his book is sure of a welcome. What, perhaps, will attract most attention is his note on tooth maturation: he thinks a mature tooth should show a much diminished, or even non-existent, pulp cavity, accompanied by occlusion of those dentinal tubules whose odontoblasts have been destroyed during the concentric calcification of the pulp. A tooth will thus be caries-resisting in proportion to its "maturity." The work is written as a classroom guide, and though "all controversial matter is presented as such"—and there is plenty of it—the author always provides a solid foundation of fact.

"Plasma Proteins and their Osmotic Pressure"[9] is a monograph by Professor A. CODOUNIS of the University of Athens. Professor Ch. Achard contributes a preface in which he points out the importance of an accurate knowledge of the blood proteins for numerous pathological problems, and mentions that the work described was carried out in his laboratories. The monograph is divided into two sections, experimental and clinical. The standard measurement adopted by the author is the estimation of the total plasma proteins and the globulins, and from this he obtains the ratio albumin/globulin, which he terms the albumin quotient. The author has obtained certain remarkable experimental results. In particular, he found that thirst in animals produced a rapid fall in the plasma protein, whereas no such fall followed purgation with croton oil, and intestinal obstruction caused a rise in the plasma proteins. The greater part of the volume is devoted to a description of the changes in the albumin quotient that occur in a variety of diseases in man.

Dr. R. L. WORRALL'S *Table of Incompatibles*[10] is a large leaflet on which are arranged the names of fifty-six medicaments down and across so that ordinates and abscissae drawn against these names intersect and thus afford the means to indicate for every combination of pairs whether they are compatible or otherwise by a mark at the point of intersection of the lines. The scheme appears unattractive to us. Some things which are incompatible in certain circumstances are compatible in others, but no explanation is provided regarding the conditions or causes of the incompatibilities indicated. The user of the table will desire more than the warning given. His desire will necessitate a reference to an indexed book on the subject, and inasmuch as the marks on Dr. Worrall's table are somewhat uncomfortably crowded it would appear easier to use such an indexed book at the outset. The nature of the information supplied by the table is of high importance, but it needs to be amplified, and we think would be handier if bound in a small volume.

A second edition has appeared of the useful booklet *Simple Instructions for Diabetic Patients*,[11] drawn up by Dr. DOROTHY HARE, physician to the Royal Free Hospital, for the use of patients, nurses, and practitioners.

[6] *Bee Venom Therapy. Bee Venom, Its Nature and its Effect on Arthritic and Rheumatoid Conditions.* By Bodog F. Beck, M.D. New York and London: D. Appleton-Century Company Inc. 1935. (Pp. 238. 18s. net.)
[7] *A Brief Outline of Modern Treatment of Fractures.* By H. Waldo Spiers, A.B., M.D. London: Baillière, Tindall and Cox. 1935. (Pp. x + 130; 109 figures. 9s.)
[8] *Dental Histology and Embryology.* By Theo. B. Beust, M.D., D.D.S., Professor of Dental Histology and Comparative Anatomy, School of Dentistry, University of Louisville. Philadelphia and London: W. B. Saunders Company. 1934. (Pp. 170; 147 figures. 13s. net.)
[9] *La Protidémie et la Pression Osmotique des Protides.* By Antoine Codounis. Paris: Masson et Cie. 1934. (Pp. 212. 36 fr.)
[10] John Bale, Sons and Danielsson, Ltd. (1s. 6d. net.)
[11] *Simple Instructions for Diabetic Patients.* By Dorothy C. Hare, M.D., M.R.C.P. Second edition. London: H. K. Lewis and Co., Ltd. 1935. (Pp. 24. 1s. net.)

Preparations and Appliances

GREASE-GUN METHOD OF FEEDING THROUGH GASTROSTOMY OPENING

Mr. R. RUTHERFORD, F.R.C.S. (Longtown, Cumberland), writes: I have recently tried a novel method of introducing a full normal diet through the gastrostomy opening in cases of carcinoma of the oesophagus.

The screw-shafted plunger type of grease gun is used—capacity about 2 oz.—and can be procured at any garage at a small cost. I had a nozzle made by the motor mechanic, who used a No. 12 silver catheter (English) as a model, the terminal three inches being copied and a screw turned on the proximal part, which takes a small nut to secure it on the end of the grease gun, where it engages on the thread really destined for the grease nipple.

Such articles of diet as potato purée, raw mince, spinach, finely chopped vegetables, porridge, coddled eggs, bread-and-milk, milk puddings, etc., are placed in the barrel of the grease gun, the plunger introduced, and the gun is ready loaded. The nozzle is now passed into the gastrostomy opening and the contents forced into the stomach by screwing the plunger home. By this means an adequate amount of ordinary food can be given to any such patient with great benefit. It goes without saying that weight is put on much more rapidly than by the older method of tube and funnel feeding, and the patients I have treated are quite enthusiastic—partly, I imagine, due to the fact that they are able to take the same kind of food as the rest of the family.

I may mention that most grease guns of this type are made of brass, and it is essential to keep them clean, as it is conceivable that any acid present in food debris left would attack the metal and set up a gastro-enteritis.

THE MEDICAL CURRICULUM

REPORT BY G.M.C. COMMITTEE

A special committee of the General Medical Council, entitled the Curriculum Committee, was appointed on June 2nd, 1934, to consider information and proposals received by the Council with respect to the revision of the curriculum.

The following report of the Curriculum Committee was presented to the Council on May 31st, 1935. The Council resolved that the report, together with the draft of revised resolutions in regard to professional education appended to it, should be received by the Council as an interim report and circulated to the licensing bodies and to the deans of medical schools for their observations.

The interim report and the draft resolutions will be further considered by the Council at its session in November, 1935.

The members of the committee are: Dr. H. L. Tidy (chairman), Professor J. B. Leathes, Professor J. S. B. Stopford, Sir George Newman, Dr. H. G. Dain, Mr. L. P. Gamgee, and Mr. R. J. Johnstone, with the President (Sir Norman Walker) *ex officio*.

Introductory

The Committee were appointed by the Council on June 2nd, 1934, in accordance with a recommendation by the Executive Committee, "to consider information and proposals received by the Council with respect to the revision of the curriculum, and to report to the Council." The Committee have held six meetings, and are now in a position to submit to the Council this report on the results of their deliberations.

The Committee have had in mind the need of working within the provisions of the Medical Acts. The Committee have carefully considered the many criticisms of the present curriculum and the suggestions which have been put forward for the improvement of medical education.

There does not appear to be a substantial body of criticism of the basis of the system of the curriculum, or of methods of medical education general in this country. The system of medical education varies widely in different countries, but there is no evidence that a higher standard at qualification is obtained anywhere else, that certain special features are of such importance or value as to demand inclusion in our curriculum, or indeed that the countries concerned are satisfied with their own methods.

The Committee are of opinion that medical education in this country will be best advanced by developing and improving the existing system. Further, there does not appear to be an appreciable body of criticism of the main principles of the present curriculum, as, for example, its approximate length, the chief subjects required, and the order in which they are studied. An increase in the length of the curriculum would add to the financial burden of medical qualification and tend to exclude those of limited means rather than those of more restricted abilities. The standard at qualification can be improved, without lengthening the period of five years, by raising the requirements at entry and expending to fuller advantage the time available.

Admission to Curriculum and Registration as a Student

The present Resolutions of the Council in regard to Professional Education require that before admission to the medical curriculum proper a student shall have passed an examination in general education, and an examination in preliminary scientific subjects and should be registered as a medical student.

The medical curriculum proper may be taken in general as commencing with the study of anatomy and physiology. Registration as a medical student by the Council takes place at this point, but not under the age of 17 years. The average age at registration is now about 18 years, so it is evident that a good many students do register and enter upon the medical curriculum before this age.

The Committee are in agreement with the opinion that the medical curriculum proper should not be entered upon before the age of 18 years, partly to ensure a sufficiency of general education, and partly to await a due maturity of mind. Registration of medical students is not mentioned in any of the Medical Acts, and could only be enforced by the Council if Parliamentary powers or general consent were obtained. The Committee recommend that all the licensing bodies should be invited to decide to raise the age of admission to the medical curriculum proper to 18 years, and also to require registration.

General Education

The present policy of the Council is that the standard of general education should be at least equal to that of entry into other learned professions, and not below that of the matriculation examination of universities. The Committee are in agreement with the widely expressed desire that the general education required of the student should not cease at too early an age, and also that the present standard should be raised.

The improvement of the standard of the existing entrance examination, as by the addition of further subjects, would not fulfil the wish that general education should be continued in some form until the age of 18 years. It would be difficult to formulate a scheme capable of general application. Many boys and girls now take the School Certificate about the age of 16 years, and having then decided to enter the medical profession, complete their study of the preliminary scientific subjects while still at school. They are thus in surroundings where they can continue the study of other subjects, and, we hope and believe, frequently do so. In such conditions there would be no great difficulty in arranging that a subsequent examination should be taken in one or two additional subjects of general education at a fairly high standard.

Such an arrangement cannot, however, apply to all students, since the conditions under which the examinations in general education and preliminary scientific subjects are passed vary considerably under different licensing bodies and with individual students. The Committee are of opinion that if the principle be adopted, the licensing bodies will themselves most appropriately find the method of applying it to their own requirements.

The Committee recommend that at the pre-registration examination, which at present consists of scientific subjects, one or two subjects of general education at an approved standard should also be taken. The Committee express no decided views on the question of requiring Latin to be offered as a subject of general education.

Preliminary Scientific Subjects

Many secondary schools are now well equipped for teaching the preliminary scientific subjects, especially chemistry and physics. As this equipment has in many cases been provided at great expense as a result of the Council's Resolutions of 1922, there would be hardships if any change in principle in regard to chemistry, physics, and biology should be made. The position varies greatly in different parts of the country. Some medical schools for the present must continue to teach these subjects, and many of them prefer to do so.

Chemistry.—It is generally recognized that a good deal of the subject-matter of inorganic chemistry possesses no special educational merit and is not of particular value in the medical sciences. The omission of such matter would enable both inorganic and organic chemistry to be taken in this elementary course and examination, and the Committee therefore recommend that the subject of chemistry should include both inorganic and organic chemistry. A student would thus pass about the age of 18 an examination which would satisfy the requirements of the Council in chemistry and physics, and enable him to enter on the medical curriculum proper without having before him any further examination in these subjects. The subjects of chemistry and physics in various applications necessarily enter subsequently into several branches in the curriculum proper.

Biology.—The Committee have given special attention to the subject of biology. At present it is not commonly taught in secondary schools, even in many of those satisfactorily equipped for the teaching of chemistry and physics, although considerable advance is in progress as the result of the present Resolutions. The Committee are in agreement with the view that knowledge of this subject is a valuable introduction to anatomy and physiology. They are also in agreement with the view that instruction in biology should not cease at the end of the pre-registration period. The Committee recommend

that it should be permissible, as at present, for the course of instruction to commence before, but that the examination should be taken after, registration. They recommend that it should be regarded as the intention of the Council that instruction should continue into the period of the professional scientific subjects, and that the examination should not be taken immediately after registration. The Committee recommend that botany should be considered as included in biology.

Medical Curriculum Proper

The student, having satisfied the examiners in general education and in chemistry and physics, and having attained the necessary age, should now be registered, and can enter upon the medical curriculum proper. He will have completed the examinations in elementary chemistry, organic and inorganic, and in physics, and may have commenced the study of biology.

The subjects of the medical curriculum proper fall into two main groups and periods of study, the professional scientific subjects occupying the first two years, and the clinical subjects occupying the final three years. The definite "block" which exists at present between these two periods has evoked numerous criticisms. A study of the Resolutions and the Additional Resolutions shows that it was the intention of the Council that there should be an examinational block at this point, the object being that the student should not pass to the three clinical years until he had proved his knowledge in the professional scientific subjects. Of this type of block there is no substantial criticism, and the Committee are of opinion that it should be maintained.

It was plainly not the intention of the Council that the block should be concerned with instruction. The Resolutions and Additional Resolutions were framed so as to avoid this by providing for instruction in applied anatomy and physiology during the clinical years. But it is clear that such provisions are insufficient to achieve adequate correlation of the two groups. The student has no introduction to clinical studies in the first two years, and having passed the examination at this stage, he may hear little more of anatomy and physiology, with the exception that he meets anatomy in the final surgical examination, and may have to study it afresh. There may be no effective correlation of the two groups of subjects, and in that case the student, having passed the examination, is liable to forget some of the details of anatomy and physiology which should form the foundations of clinical teaching and knowledge.

The Committee recommend, first, that an introduction to clinical subjects should take place during the period of study of the professional scientific subjects, and, secondly, that organized instruction in applied anatomy and physiology should be continued during the period of clinical studies.

Period of Study of the Professional Scientific Subjects

Duration.—It is generally agreed that this period should occupy two years. Systematic teaching is commonly carried out in periods of university terms, and there would be great difficulty in altering the duration to calendar years with continuous teaching. The Committee recommend that the period should remain at two academic years, but that the Council should approach the licensing bodies with a view to the present length of the terms being increased. The various subjects will now be referred to separately.

Biology.—Instruction in this subject should continue in this period, and the examination in it should be held at some appreciable interval after registration.

Organic Chemistry.—No special instruction or examination in this subject would be necessary if it is dealt with, as recommended above, with the pre-registration subjects.

Anatomy.—The Committee have given careful consideration to the criticisms of the teaching of this subject. A special criticism to which reference should be made is that dissection of the entire body is unnecessary. The Committee, having considered the subject, recommend that dissection of the entire body should be required. A more general criticism is that anatomy is taught in too great detail, and sometimes by teachers not in touch with the application of anatomy to clinical medicine. It is urged that instead of being taught on a vocational basis, anatomical teaching is sometimes conducted on the assumption that all students are likely to become professional anatomists. Such opinions are so widespread that they must be accepted as possessing a foundation in fact; but the criticisms are probably less true now than they were some years ago, and they are not true of all teaching schools. Some of these points, especially in regard to excessive detail in instruction, can scarcely be dealt with in the Resolutions of the Council; they are matters for the internal administration of the various teaching bodies. The Committee believe that it is now generally the custom for clinical teachers to be associated with the teaching of anatomy. The publicity given to these criticisms will doubtless be of value. The vocational aspects of anatomy can be brought more prominently into view by commencing the introduction to the clinical subjects in the second year, and can further be brought before the teachers and the students by continuing instruction in applied anatomy (and physiology) during the period of clinical studies. The recommendations of the Committee in these directions have the objects of meeting the criticisms of the teaching of anatomy, and of removing the block referred to previously.

Physiology.—The criticisms of the teaching of physiology are generally on the same lines as those of anatomy, but are less emphatic. It is held that too much attention is paid in some schools to branches of physiology which are of little vocational value, and the detailed study of which is not essential for a general understanding of physiology. There is evidence that this sometimes occurs. It is also suggested that modern physiological developments of practical importance are not incorporated in the teaching without undue delay. The Committee are not satisfied that this criticism is in general justified, but they are of the opinion that physiology and clinical medicine should be brought into closer union, especially by continuing the instruction in physiology into the clinical years, and by the association of clinical teachers with the teaching of physiology. In view of the great importance of a knowledge of psychology in the clinical period, the Committee agree with the view that an introductory course in normal psychology should be given at this stage. The Committee also agree with the view that instruction in the principles of genetics should be given at this stage.

Resolutions: Proposed Amendment

The Committee accordingly recommend that the resolutions in regard to anatomy and physiology should read as follows:

> "Human Anatomy and Human Physiology. These courses should include: (1) Dissection of the entire cadaver. (2) Anatomy of the living body. (3) Elements of Human Embryology. (4) Histology, Cytology, and the Principles of Genetics. (5) The principles of General Physiology, the Chemistry and Physics of bodily functions studied as far as possible in the human subject. (6) Elements of normal Psychology."

It will be observed that later in this report the Committee further recommend that the following resolution should be included in the Resolutions applicable to the teaching both of medicine and of surgery in the period of clinical studies:

> "Regular Instruction and Demonstrations in Applied Anatomy and Physiology during the Period of Clinical Studies, to be carried out by the Teachers of Anatomy and Physiology and the Clinical Teachers jointly."

Introduction to the Clinical Subjects

The Committee accept the view that the introduction to the clinical subjects should take place during this period, with the object of associating them with the scientific subjects as early and as closely as possible, but at the same time they consider that the efficient teaching of the scientific subjects must be properly safeguarded. Consequently they recommend that the introductory clinical subjects should be taught throughout, but not before, the second year, and that the amount of time to be allotted to them should not exceed one-third of the total time available in that year.

With these essential provisos, they recommend that the following subjects should form part of the curriculum for this period: (1) Elements of the methods of clinical examination, including physical signs, the use of stethoscope, ophthalmoscope, etc., and the examination of body fluids (with demonstrations on living subjects, normal and abnormal). (2) An introduction to general pathology and bacteriology. (3) An introduction to pharmacology.

Examinations

The Committee accept the view that a student should not pass to the period of clinical studies until he has satisfied the examiners in the subjects of the first two years. With regard to anatomy and physiology, the importance of such a proviso is obvious. The position in regard to the introductory clinical subjects is different, as they will form an essential part of the teaching of the period of clinical studies and of the final examinations. The time allotted to them in the second year is substantial, and the Committee are of opinion that the student's attention will not be properly directed to them unless an effective examination is held.

Period of Clinical Studies

The clinical period proper should begin in the third year of the curriculum, and occupy the third, fourth, and fifth years. If the foregoing recommendations of the Committee are accepted, the student would already possess some knowledge of clinical methods and of elementary pathology and bacteriology. The Committee desire to refer to certain general criticisms of this period before passing to individual subjects.

1. *Full Use of Time Available.*—The Committee are impressed by the amount of time during the long vacation and other holidays in which neither clinical nor systematic instruction is available in some schools. The Committee are of opinion that the clinical period should occupy three calendar years, during which clinical instruction should be continuous. The students should be required to be in attendance at the hospital throughout this period, with reasonable holidays at the discretion of the responsible authorities. Systematic lectures and similar instruction need not be required during the academic holidays. The Committee recognize that examinations are not held in the same months by all licensing bodies, and the total period might be from thirty-three months to thirty-six months in the varying conditions.

2. *The Teaching of Anatomy and Physiology.*—The Committee are in agreement with the view that the teaching of anatomy and physiology in relation to clinical medicine should be effectively continued during the clinical period. They propose that the Resolution with regard to applied anatomy and physiology should read:

> "Regular Instruction and Demonstrations in Applied Anatomy and Physiology during the Period of Clinical Studies, to be carried out by the Teachers of Anatomy and Physiology and the Clinical Teachers jointly."

3. *Closer Contact of the Students with Patients, with some Measure of Responsibility.*—The Committee are of opinion that this could be best secured by a period of residence in hospital. In those teaching schools in which such residence is available at present, it is found that the students can be allowed valuable responsibility under satisfactory supervision, and that they benefit greatly from this experience. The Committee recommend that there should be a period of not less than one month's residence in hospital, both in medicine and in surgery, and that the relevant Resolution should read:

> "A continuous period of not less than one month in residence in hospital or conveniently near by, attached to medical (surgical) wards."

Together with the two months' residence as obstetrical pupil, this would ensure that every student would spend four months in residence. He would thus obtain closer contact with patients, more continuous observation, and more practical experience in responsibility previous to qualification.

4. *Minor Illnesses and Early Stages of Disease.*—The Committee agree with the view that it is important that all students should obtain instruction in these types of disease. They are commonly dealt with in out-patient or similar departments. Consequently the Committee recommend the following Resolution, which is at present the requirement of many medical schools:

> "Regular attendance in a medical (surgical) out-patient or equivalent department for a period of three months."

They also recommend the following Resolution in surgery:

> "Practical Instruction in Minor Operative Surgery on the Living."

5. *Systematic Lectures.*—There is a substantial body of adverse criticism of the number of systematic lectures and the manner in which they are delivered. The Committee are of opinion that such criticisms usually apply to individual schools, and that this is a matter to be dealt with by the responsible authorities. The Council in the past have never defined the number of lectures which constitutes a course of systematic instruction, and the Committee do not consider that it would be advantageous to do so now.

6. *Methods of Clinical Teaching.*—There is much criticism on this point. Some of this criticism is definite, such as the statement that rare cases rather than common ones attract the attention both of the teachers and students, but much of the criticism is indefinite, such as the view that principles should be taught rather than facts and details. The Committee are of opinion that uniformity in teaching is neither practicable nor desirable. The Council in the past have not framed Resolutions on methods of teaching. The Committee are of opinion that the methods and reasons for appointments to the teaching staff of medical schools are matters for the responsible authorities of the various medical schools.

The subjects in the period of clinical studies will now be referred to separately, except where they have already been discussed.

Medicine

Clinical Clerkship.—It is recommended that the Resolution should be altered to read:

> "A Medical Clinical Clerkship in the Hospital wards for a period of six months."

Most medical schools already require this period.

Disease in Infancy and Childhood.—The Committee accept the view that every student should have practical acquaintance with this subject, and recommend as a Resolution:

> "A Clinical Clerkship for a period of not less than one month in a Children's ward or Hospital."

This is already the practice in many medical schools, and it is found that the time can be provided without interference with other duties in the six months allotted to midwifery, infant hygiene, and diseases of women.

Methods of Treatment.—It is now generally recognized that knowledge of certain methods of treatment which are not included in the present Resolutions is essential. The Committee recommend the addition of the following Resolution:

> "Instruction in Methods of Treatment, including: (*a*) Dietetics; (*b*) Therapeutics and Prescribing; (*c*) Physio-Therapy; (*d*) Principles of Nursing."

Special Subjects.—The Committee have carefully considered the criticisms of the teaching of those branches of medicine which are commonly referred to as special subjects, and they agree that such teaching is sometimes unnecessarily detailed. At the same time it is essential that students should be reasonably familiar with the principles of these branches. The Committee recommend that the important subject of (1) child welfare should be added to those at present required, and they further recommend the addition of (2) psychology, and (3) radiology in its application to medicine. The Committee recommend that the following should be added to the Resolutions in this section:

> "The instruction in these Branches of Medicine should be directed to the attainment of such knowledge as to ensure familiarity with common conditions, their recognition and treatment, and the indications for consultation."

Surgery

Clinical Dressership.—It is recommended that the Resolution should be altered to "A Surgical Dressership in the Hospital wards for a period of six months." The Committee agree with the opinion that students during the period of dressership spend time unprofitably in the operating theatre. They recommend the addition of the following words as a note on the foregoing Resolution:

> "During his period of Surgical Dressership a student should spend the greater part of his time at the bedside and in the out-patient department; and he should not be required to attend in the Operating Theatre unnecessarily."

Practical Instruction in Surgical Methods.—The Committee recommend that "Physio-therapy" be substituted for "Mechano-therapeutics" in this Resolution. The Committee recommend that Resolutions should be adopted in surgery, as in medicine, with reference to a period of residence in hospital,

a period of instruction in the out-patient department, and the teaching of special subjects. To the special branches of surgery they recommend the addition of "Disease in infancy and childhood." "Radiology in its application to surgery," and "Dental diseases." The Committee recommend that the requirements with regard to instruction in the administration of anaesthetics should remain as at present.

Midwifery, Infant Hygiene, and Diseases of Women

This section of the Resolutions has recently been carefully revised by the Council. Criticisms are in the main favourable, and the Committee consider that, apart from the insertion of provision for instruction in post-natal as well as ante-natal care, only minor alterations are necessary.

Pathology

Advances in pathology have brought it continuously into closer touch with clinical medicine. The Committee are of opinion that this aspect should be more strongly emphasized than in the present Resolutions. They recommend that the Resolution should be as follows:

"Pathology and Bacteriology. Courses of Instruction throughout the Period of Clinical Studies in (1) General and Special Pathology and Morbid Anatomy; (2) Clinical and Chemical Pathology; (3) General and Clinical Bacteriology and Immunology."

The Committee have given careful consideration to the question of attendance at autopsies. It has been suggested that a certain number of attendances should be required at the commencement of the clinical period, and a further number towards its termination, but the Committee consider that it would be difficult for some medical schools to comply with such a requirement. Further, they are of opinion that students attend many autopsies in addition to those officially required. Consequently the Committee do not recommend alteration of the present requirement.

Pharmacology

The Committee recommend that the present Resolution should be altered to read:

"A course in Pharmacology and Materia Medica, including Practical Pharmacy."

Resident Hospital Appointments

It has been suggested that the Resolutions should require every student to hold a resident hospital appointment before being eligible to enter upon general practice. The student would thus have experience in the application of the knowledge which he has acquired, and at the time of qualification would be more familiar with the responsibilities of practice. The methods suggested for providing the necessary time fall into two main categories:

(*a*) That the period should be subsequent to the completion of the five years' curriculum. The Council have no power to make any requirements subsequent to the passing of the final, or qualifying, examinations. Further, the Committee are of opinion that there are no substantial grounds for lengthening the present period before a student can become a fully qualified registrable medical practitioner.

(*b*) That a period of six to nine months in the final clinical year should be allotted to such appointments. The Committee are of opinion that no such time is available within the five years' curriculum. The appropriation of several months for such a purpose would seriously diminish the period now regarded as a minimum for fulfilling the present requirements of the Council.

If the proposed Resolutions are accepted, every student will spend four months in residence in hospital, and the Committee believe that this will provide the student with valuable experience of the character desired.

Additional Resolutions

The Committee have considered the criticisms that the present Resolutions contain no reference to instruction in the measures by which normal health may be maintained. They recommend that the substance of the present Additional Resolution (*a*) be incorporated in the body of the Resolutions, under the general heading "Medical Curriculum," by the insertion of the following paragraph:

"Throughout the whole period of study the attention of the student should be directed by his teachers (*a*) to the importance of the measures by which Normal Health may be maintained, and (*b*) to the principles and practice of the Prevention of Disease."

It has been strongly urged that students should be more fully instructed before qualification on the legal and ethical obligations of registered medical practitioners. The Committee recommend that the following new Resolution, based upon the present Additional Resolution (*h*), be included in the body of the Resolutions:

"Instruction should be given during the later stages of the Period of Clinical Studies, by some person having practical knowledge of the subject, on the statutory obligations of registered medical practitioners under the National Health Insurance Acts and other Acts of Parliament, and on the principles of medical ethics. Attention should be called to all Notices on these subjects issued by the General Medical Council."

The Committee are of opinion that if the recommendations set out in this report are adopted, the purposes of the existing Additional Resolutions will be sufficiently provided for in the Resolutions, and that the Additional Resolutions may be omitted.

[Draft resolutions in regard to professional education, prepared for the purpose of giving effect to the recommendations made in the Curriculum Committee's report, are appended to the printed document.]

SOCIETY FOR RELIEF OF WIDOWS AND ORPHANS OF MEDICAL MEN

At the annual general meeting of the Society for Relief of Widows and Orphans of Medical Men, held on May 22nd, with Mr. V. WARREN LOW, president, in the chair, the report for 1934 showed that fifty-seven widows and nine orphans had received relief during the year; £2,885 10s. was granted from the ordinary funds, £1,664 8s. from the Brickwell Fund, £80 from the Copeland Fund, and Christmas presents amounted to £640. The total income for the year was £5,405 13s. 6d., and the total expenses £358 8s. 2d. The annual grant paid to widows over 65 was £75, those under 65 £60, and each orphan received £50; £404 8s. was granted from the Brickwell Fund to orphans to enable them to continue their education, or to assist them in studying for some business or professional career. The grants from the Copeland Fund were made to orphans who, owing to some permanent disablement, are unable to follow any occupation. There are 262 members of the society, and membership is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross. Relief is only granted to the necessitous widows and orphans of deceased members.

Eight directors were elected to fill the vacancies in the Court, the other members being eligible for re-election. The president reported the death of the senior vice-president, Dr. W. Culver-James, who was elected a member in 1882, and who had always taken the greatest interest in the society.

The society is most anxious to increase its membership, and the directors strongly urge that the newly qualified or newly married should apply for particulars, which may be obtained from the secretary at 11, Chandos Street, W.1. The advantages of membership are well shown by the grants that are made. A widow whose husband died before being able to make proper provision, leaving her with four children, is now receiving a yearly grant of £260. The annual subscription for a member who at the time of his election is under 35 years of age is £2 2s., over 35, £3 3s., and over 45, £4 4s. The invested funds amount to £140,000, and only the income may be used for payment of grants. A vote of thanks to the Editors of the medical journals for inserting notices of the society during the past year was moved from the chair.

Although the society was founded in 1788 and incorporated by Royal Charter in 1864, there appear to be still a certain number of medical men who are unaware of its existence. It is one of the oldest medical charities, and young medical men, who may be cut down in the prime of life, can be assured that should they leave a widow not suitably provided for she will receive a yearly grant from the society. Many widows have to be refused help each year owing to the fact that their husbands had not joined the society.

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SERUM TREATMENT OF STREPTOCOCCAL INFECTIONS

Ten years have now passed since the treatment of streptococcal infections with antibacterial serum gave place largely to the indiscriminate use of streptococcus antitoxin, a remedy primarily designed for the treatment of scarlet fever. The experience gained in ten years might at first sight be considered adequate to furnish evidence of the value of this treatment, yet in fact such evidence is extremely difficult to obtain. Even in a self-limited disease such as lobar pneumonia convincing proof of the effect of serum treatment demands a long series of cases with untreated controls, and strictly fair controls can be provided by treating only alternate cases. Streptococcal infections, on the other hand, are of unending diversity in their severity, extent, and duration; two really parallel cases can scarcely be said to exist, unless in an epidemic of surgical or puerperal sepsis. Controls must be hard to find, since where this treatment is believed in it is naturally employed in every instance. In these circumstances only a favourable comparison between present-day results and those antedating the introduction of this treatment can justify it. Is there such a difference? Or is streptococcus antitoxin still being administered simply because no other generally recognized form of specific treatment exists?

The comparative futility of much of the available therapeutic evidence is exemplified by the results of Sheplar, Spence, and MacNeal,[1] who treated a series of cases with the "concentrated streptococcus serum of the laboratory of the New York State Department of Health." These authors are fully convinced of the efficacy of this serum; such phrases are used as "the serum is strongly recommended," and "recovery was surprisingly prompt." Yet the cold facts about these carefully described cases are that five of the thirteen patients died, and of the eight who recovered only one had at any time a positive blood culture, the remainder being cases chiefly of local cellulitis, with or without suppuration, due to infections originating in the hand. The nature of the serum employed is not further disclosed beyond the description already quoted, though from the fact that dosage is set out in units it may be presumed to have been antitoxic. Some confusion would be avoided if distinct descriptions were generally adopted for antibacterial and antitoxic serum in this connexion; the terms "antistreptococcal serum" and "streptococcus serum" are ambiguous, and demand further definition, which they by no means always receive in clinical reports. In a paper concerned solely with the merits of a particular serum, a statement of its mode of preparation and titration and of its supposed antibody content would not be out of place.

It is commonly argued that whether or no serum is going to do good, at least it will do no harm. The results now reported by Dr. Leonard Colebrook in the *Lancet* of May 11th appear to mean that in puerperal fever serum treatment so far from doing good is decidedly prejudicial to recovery. Serum is not prescribed at Queen Charlotte's Hospital. Out-patients are often admitted who have already been given it. The mortality of all these cases during a period of five years was 30.4 per cent., and of those among this group who were in fact suffering from an infection by haemolytic streptococci (since over one-third were not) 45 per cent. The corresponding mortalities among patients who had not received serum before admission were 11.6 per cent. and 22.3 per cent. These figures might be taken to mean that serum treatment doubles the mortality from puerperal fever. Making all due allowance for possible fallacies, they must still suggest that the effect of serum treatment may be unfavourable. The obvious argument that serum would have been administered to the more severe cases, or to cases admitted at a late stage, are considered fairly and largely answered. This is not the first report of unfavourable results from serum treatment in puerperal fever. Benson and Rankin,[2] who restricted their observations to cases with demonstrated streptococcal septicaemia, had a mortality of 75 per cent. in fifty-seven serum-treated cases and of 68 per cent. in the same number of controls.

Colebrook, in reviewing these and other reported results, and considering at the same time the scanty experimental evidence on which our present therapeutic practice is based, advises that the use of serum in the treatment of puerperal and surgical sepsis should be discontinued. It is not to be expected that this conclusion will be quietly accepted, but at least it should provoke a more critical attitude towards this form of treatment, and perhaps lead others not only to examine their own results but to alternate serum with some other form of treatment. The recent claim of Cadham[3] to have reduced the mortality of streptococcal and staphylococcal septicaemia to only 10.5 per cent. by giving fresh normal human serum to supply a deficiency of complement, and small doses of serum from immunized rabbits, is both startling and reasonable enough to justify a trial of his method. What appears above all to be necessary to further progress is that dissatisfaction and enterprise should replace the stereotyped methods and complacency which have so strangely followed the introduction of streptococcus antitoxin into therapeutics. This remedy, whatever may be thought of any individual report on it, is quite certainly a comparative failure in most of the directions in which it has been employed, and something better must be found.

[1] *Arch. of Surg.*, 1935, xxx, 357.

[2] *Lancet*, 1933, i, 848.

[3] *Amer. Journ. Med. Sci.*, 1934, clxxxviii, 542.

THE NATURAL HISTORY OF DISEASES

More than sixty years ago William Budd wrote:

"It is obvious that the formation of just opinions on the question how diseases spread may depend less on personal ability than on the opportunities for its determination which may fall to the lot of the observer. It is equally obvious that where the question at issue is that of the propagation of disease by human intercourse, rural districts, where the population is thin, and the lines of intercourse are few and always easily traced, offer opportunities for its settlement which are not to be met with in the crowded haunts of large towns. This is one of the cases in which medical men practising in the country have for the acquirement of medical truths of the highest order advantages which are denied to their metropolitan brethren, and which constitute, on the whole, no mean set-off against the greater privileges of other kinds which the latter enjoy."

It is humiliating to reflect how rarely this profound truth has been realized. In the days when epidemiology could *only* be studied by the natural-historical method, because statistical data were scanty or did not exist, annalists were seldom country practitioners in Budd's sense. Ballonius and Sydenham were physicians in capital cities. Wintringham and Huxham were provincials, but both were physicians, not general practitioners. Perhaps the relatively low standard of education of general practitioners before the nineteenth century dissuaded them from authorship. This has long ceased to be a valid excuse, but, with the prodigious multiplication of fairly accurate statistical data and the specialization of scientific interests, country practitioners may have supposed that any contributions they could make to knowledge by dint of personal observation and recording would be unimportant. There could hardly be a graver mistake. In a statistical and experimental age the natural-historical method is more important than before, not less important. The immense growth of laboratory zoology has not made the naturalist obsolete. The most brilliant medical entomologist of our generation, the late Arthur William Bacot, trained himself as an amateur in the leisure of a city clerk, and some of his best work on the rat-flea was done in a suburban garden outhouse. Organized medical statistics and laboratory experimental epidemiology are not substitutes for the observation of nature, but ancillary means. They provide checks, they afford suggestions—they can do no more.

The summary of a paper read before the Section of Epidemiology and State Medicine of the Royal Society of Medicine by Dr. W. N. Pickles, printed in our issue of June 1st (p. 1137), has prompted these remarks. Dr. Pickles is already favourably known to our readers from his interesting note on the appearance of "Bornholm" disease in Wensleydale, published in the *Journal* of November 4th, 1933. We trust that when the full text of Dr. Pickles's latest paper is available it will be widely read. We are even sanguine enough to hope that it may mark the beginning of a new era in epidemiology. Space does not permit us to enlarge upon the possibilities of research which Dr. Pickles's methods suggest; we will refer to one only. The incubation period of an infectious disease must, like other biological phenomena, be variable. The causes of its variation are a matter of great interest. In the vast literature of infectious diseases are recorded enough instances of persons exposed to a particular source of infection on a single occasion for a statistical evaluation to be practicable. Thus Dr. J. R. Miner,[1] in a paper on the incubation period of typhoid fever, has a record of ninety-three cases of persons certainly infected by spaghetti served at a dinner. Taking only the eighty-four for which the time interval was definitely assigned, the range is from three to twenty-nine days. Fifty-one (61 per cent.) fell between the limits five to eight days. Is the wide recorded range due to (1) incorrect observation, (2) innate differences of biological type, (3) acquired differences dependent on previous exposure? When one is dealing with a city population knowledge under (1) and (3) can never be assured. The epidemiologist of a country district has certainty here. It is true that his numerical data will be scanty, but that is a reason, not for neglecting the method, but for persuading all with suitable opportunities to record their precise observations. There is surely a certain oddness in the wide ranges of incubation periods; some explanation on biological lines must be possible. A preliminary is to obtain records of exact and *homogeneous* observations. Dr. Pickles's observations on the incubation period of catarrhal jaundice bring out an incubation period of about a month and, apparently, falling within a fairly narrow range. Other observations make it probable that the incubation period is shorter. May we be dealing with epidemiologically distinct forms? This is only one and perhaps not the most important of the problems which the natural-historical method can solve.

If only Dr. Pickles's example were to inspire others practising in sparsely populated districts, others to whom also the facts are something more vivid than entries in a statistical table, progress would be certain. It would not be *rapid*; there would be none of those "sensational medical discoveries" which a "medical correspondent" communicates to a newspaper one day and the world (quite properly) forgets on the next; but it would be certain. A candid scientific critic of epidemiology once remarked that it seemed to be a hotchpotch of folk-lore, biography, and figure-juggling. An unkind but not wholly pointless remark. A generation or two of accurate natural-historical studies would blunt the point more effectively than researches which, in the opinion of the world, are now deemed more scientific.

SINUSITIS IN CHILDREN

Infection of the accessory nasal sinuses in children is an important subject inadequately dealt with in text-books on rhinology. The comprehensive account of sinusitis and its complications occurring in children under 14 years, recently written by A. Laskiewicz,[1] is a useful contribution to the literature. Sinusitis in children is apt to be overlooked on account of its

[1] *Journ. Infect. Dis.*, 1922, xxxi, 296.
[2] *Rev. de Laryngol., Otol. et Rhinol.*, September–October, 1934, No. 8.

insidious development, often during the resolution of some infectious fever, and because the predominant symptom, nasal discharge, is so commonly regarded as of no importance. Careful rhinoscopic examination, together with transillumination and radiography, with or without the instillation of lipiodol, will reveal the infected sinus. The exciting cause of sinus suppuration is nearly always an acute coryza. The inflammatory processes begin in the nasal mucosa and then spread to other cavities, there causing an acute exacerbation of a latent infection or a primary suppuration. The ethmoidal labyrinth is the most commonly affected sinus, and the maxillary antrum the next. Beyond the signs met with in the nose, swelling of the cervical and submaxillary lymphatic glands and also of the retropharyngeal glands, the latter sometimes causing painful deglutition, is quite usual evidence of nasal sinusitis. Oedema of the lower and sometimes of both eyelids is often a sign of inflammatory trouble in the ethmoidal or maxillary sinuses in children. The post-nasal discharge may cause pharyngitis, tonsillitis, and laryngitis with cough and hoarseness, and, where the sinus infection is of long standing, tracheitis and bronchitis may be present. Bacteriological investigation of these cases shows that in the majority the predominant organism is a short-chained non-haemolytic streptococcus. Lidenthal states that the influenza bacillus is present in the nasal secretion in all cases of sinusitis. A number of different organisms occurring together in a case of sinusitis points to a long-standing infection. Watson-Williams considers aspiration and bacteriological examination essential in the investigation of suspected sinusitis. This is a direct means of establishing the diagnosis, and at the same time reveals the causative organism. The symptomatology of sphenoidal sinusitis is still indefinite The condition is rarely met with in children—0.3 to 0.5 per cent. of all cases of sinusitis—so that few cases have been described, and radiography continues to be the only reliable means of diagnosis. In this connexion Worms has called attention to the bony changes which appear in the walls of the sphenoidal sinus—" peri-sinusitis "—and the thickening in the lower part of the sella turcica. This latter may interfere with the functions of the pituitary gland. The pathology of sinusitis and its complications is essentially the same in children and adults. The infection begins in the nasal mucosa, and spreads by continuity of surface to one or more of the nasal sinuses, and sometimes to the middle ear. The two important factors are the virulence of the infection and the resistance of the patient. Anatomical abnormalities, causing interference with the normal functions of the nose, predispose to infection, as do hereditary or intercurrent disease. Avitaminosis is also of significance, and children of the lymphatic type are more liable to infection than those otherwise normal. Dealing with the question of treatment, Laskiewicz advocates conservative methods as far as possible. His measures are based on a careful consideration and observation of all his cases. The fundamental principle in nasal sinus therapy is the restoration of function, and this entails adequate aeration of all parts of the nose and its accessory sinuses. Many authorities advocate measures which more or less achieve this purpose, but few point out the rationale of their procedures. A notable exception is Proetz, whose displacement method of treating sinusitis is strongly recommended by Laskiewicz. The latter relates cases of ethmoidal and maxillary sinusitis in which he employed displacement as the means of instilling antiseptics—for example, 1 per cent. argyrol, and the antivirus of Besredka. The results were satisfactory. Surgical intervention is necessary to correct anatomical defects and to establish drainage where other methods have failed or are not practicable.

HOMICIDE IN AMERICA

The United States has an unfortunate reputation as a country in which life is relatively cheap. Statistics show an incidence of about 11,000 victims of homicide every year, or 9.2 per 100,000 of the population. Mr. L. I. Dublin and Miss Bessie Bunzel, officers of the Metropolitan Life Insurance Company, in a study entitled " Thou Shalt Not Kill,"[1] refer these figures to a deeply rooted national lawlessness, reflecting the historical background, racial mixture, and limited educational system of the country. Taking the eleven original registration States in order to obtain a long statistical view of the problem, they find a steady increase during the present century of nearly 350 per cent. The negro has contributed largely to this increase, for during the five-year period 1926-30, between seven and eight times as many negroes as white persons were slain per unit of population. A similar increase is shown in the figures of the later registration States, but the southern States have long had the worst record. About two-thirds of American deaths from homicides are caused by firearms. Spectacular and bizarre murders form a relatively small percentage. Unlike the ratio in Europe, there is a higher rate in urban than in rural areas ; whereas a large proportion of homicides in the country districts are probably crimes of passion, many urban murders arise from gangsterism and racketeering. There seems to be no seasonal variation, and the highest figures are found among policemen, saloon-keepers, bar-tenders, and watchmen. Although fluctuations in the business cycle seem to have no effect, economic considerations are profound and far-reaching. The authors suggest as a principal cause of the high rate the great heterogeneity of the population, the relative instability of the family, and the change in social and moral standards. Seventy-five per cent. of those admitted to prison on a charge of homicide are first offenders. Another explanation is the uncertainty and frequent miscarriage of justice in the United States, and the favourable chance which a murderer has of escaping scot-free. In 611 cases of homicide investigated, a considerable number of persons were killed or died before arraignment. Of the remaining 458 answerable to the law, eighteen had not been caught one year after the act and 108 were released for lack of evidence ; and of the 56 per cent. who were actually brought to trial one-quarter were acquitted. Of the 43 per cent. declared guilty, eight were sentenced to death and 170 to terms of imprisonment, nine being released on suspended sentences or after paying a fine. There is, the authors say, much room for improvement in the efficiency of

[1] *Survey Graphic*, March, 1935

the police departments and the legal machinery. One conclusion that emerges clearly is the need to restrict the sale of firearms and to obliterate such factors as poverty, unemployment, evil associations, and lack of proper recreational facilities. Treatment will continue to be a makeshift, they say, until it is possible to evaluate personality more definitely and devise methods for controlling the forces that mould human nature and society.

THE TRANSPORT OF TETANUS TOXIN

It has been confidently taught for many years that tetanus toxin is conveyed from the site of its production to the central nervous system along motor nerves. This time-honoured belief is vigorously denied by Abel, Evans, Hampil, and Lee,[1] in a long and carefully reasoned paper, which reviews and criticizes the experimental work, most of it dating from a good many years ago, on which the belief is based. The evidence that nerves absorb the toxin depends largely on its demonstration in them after inoculation of large animals with enormous doses, the index of its presence being the quantitative inoculation of mice with preparations of this and other tissues. It is pointed out that such experiments do not prove the existence of toxin in the nerve fibres themselves, since the tissue dissected must include blood vessels and lymphatics which will also contain it. There are also anomalous features in the results of attempting to demonstrate toxin in the nerve supplying the inoculated limb. Although positive results are obtained with portions of nerve near the inoculation site, its upper part may be harmless unless a very large quantity of toxin has been administered. The process of local diffusion evidently demands further study, since these authors believe that local tetanus, itself apparently a strong argument in favour of the hypothesis which they oppose, is due to a direct action on muscle. In support of this they cite an experiment by Pochhammer, who found that when toxin is injected into the distal part of a rabbit's leg local tetanus appeared before toxin could be demonstrated in the sciatic nerve. It also appears that no local tetanus is produced if the injection is made near a joint or in the dorsum of the foot, or if the animal is exercised on a treadmill after inoculation. If local tetanus is due, as is commonly believed, to the earlier involvement of that part of the cord connected by nervous pathways with the source of toxin, these observations are inexplicable. Two variants of the usual belief are objected to on other grounds. The supposition that toxin travels in the neural lymphatics is sufficiently answered by the fact that these lymphatics do not drain into the subarachnoid space ; in the case of the leg, for example, the lymphatics of the sciatic nerve are now known to drain into the deep inguinal lymph glands. The suggestion that toxin travels in the tissue spaces of the nerve is criticized on the ground that no mechanism exists for producing a flow of this type ; indeed, the normal tissue pressure is only 2 to 6 mm. of water, whereas that in the spinal cord is 80 to 120 mm. The forcible injection of fluid into a nerve may overcome this adverse pressure and thus yield misleading results. Illuminating and disturbing as these arguments are, they are unsupported in this paper by any detailed account of fresh experimental work, and a previous paper by Abel[2] does not altogether remedy this deficiency, although experiments are described here in which sheep were inoculated with large doses of toxin, and its distribution was studied with interesting results. Whether the toxin was administered intravenously or subcutaneously, a large proportion of it remained in the circulating blood and lymph, the concentration in these two fluids being equal. These investigators have convinced themselves that tetanus toxin reaches the central nervous system by the blood stream. Their present writings certainly reopen a question which almost everyone has considered settled, and perhaps rather disregarded on that account, but conviction in other minds can only come from detailed experimental proof, and the publication of this will be awaited with interest.

[1] *Bull. Johns Hopkins Hosp.*, 1935, lvi, 84.

[2] *Science*, 1934, lxxix, 121.

THE NEW POISONS LIST AND RULES

The Poisons Board, which was established at the Home Office under Section 16 of the Pharmacy and Poisons Act, 1933, has issued its report in regard to the Poisons List and Draft Poisons Rules. This has been presented to Parliament, and will remain on the table of the House of Commons for forty days. The Board includes Sir William Willcox, Dr. G. F. McCleary, Dr. J. M. Johnston, Professor Ralph Stockman, Professor Sydney Smith, Dr. G. Roche Lynch, and Dr. J. W. Bone, the last-named representing the British Medical Association. The Board explains that in accordance with the report of the Departmental Committee on the Poisons and Pharmacy Acts it has aimed at the construction of a new code to replace existing legislation, which would cease to apply when the Poisons List and Rules came into operation, and would resemble the present restrictions in the main essentials but would be free from their defects. The provisional draft of the proposals was circulated for criticism to police forces as well as to organizations likely to be affected, and in consequence the original proposals were substantially amended. A summary of the report will appear in our next issue.

CANCER OF THE BREAST

It is generally recognized that cancer of the breast is commoner in single than in married women. Additional support for this belief is afforded by statistical analyses compiled by Bogen,[3] who prefaces them by observing that this form of cancer, owing to its prominent situation and consequent ease of recognition, is probably the subject of more trustworthy returns than any other form of malignant disease. His chief piece of evidence is furnished by comparing the birth rate in the separate States of the U.S.A. with the mortality rate from cancer of the breast in females over 45 years of age ; these appear to show a quite definite inverse correlation, States with a high birth rate having a low mortality from breast cancer. Such data as are available from other countries point to the same conclusion, and among fifteen of these

[3] *Amer. Journ. Pub. Health*, 1935, xxv, 245.

England and Wales heads the list with the highest mortality rate from breast cancer (in this case including all ages) and the lowest birth rate. It would be instructive to determine how far low mortalities from breast cancer are offset by higher mortalities from cancer of the uterus. The well-known studies of Cramer suggest that although the organ incidence of cancer varies much in different countries the total incidence varies comparatively little. Bogen goes on to consider the physical mechanism underlying the greater liability of non-child-bearing women to breast cancer, and having quoted the work of Bagg, in which cancer of the breast was induced in mice by interrupting lactation either by removing the young or by tying the mammary ducts, reports a small series of experiments of his own which yielded similar results. Such experiments certainly suggest that retained secretion may act as an irritant, but it is perhaps going rather beyond ascertained facts to adduce chemical similarity between constituents of this secretion and known carcinogenic compounds as a complete explanation, merely because the word cholesterol occurs in descriptions of both, and to entitle this paper "The Cause of Breast Cancer." If retained mammary secretion acquires the properties of a carcinogenic irritant it is certainly the only natural product of the mammalian body for which so unusual and uneviable a claim has been made, and the whole process concerned is one that must be approached in a spirit of inquiry.

GAS DEFENCE

Mr. Davidson Pratt, in a lecture before the British Science Guild on June 12th, stressed the importance of educating the civil population in methods of defence against gas attacks in war, more especially from the air. Notwithstanding the prohibition contained in the Geneva Protocol, defence against chemical war is an important problem, because a country with a well-developed air service and a strong chemical industry has the means ready to hand for a rapidly improvised gas attack on the nerve centres of its enemy. Moreover, gas has a devastating effect on the morale of people ignorant of its properties and uninstructed in methods of defence; and a country's lack of preparation to defend itself against this menace from the air might well induce an enemy who had the means of attack ready to hand to use gas in order to gain a speedy victory. The lecturer outlined the nature of the menace and the various measures which have to be taken to protect the civil population. Reduced to its simplest elements, the scheme of gas defence requires that the general public should keep out of contact with gas, whether as liquid or vapour, by staying in gas-protected rooms till the raid is over and the area cleared up, and that there should be an organization for de-contaminating the areas affected and the first-aid treatment of those who have been exposed to gas. The success of the scheme will depend entirely on the behaviour of the population, as was proved in the anti-gas training of troops during the great war. If people give way to panic and lose their morale the results may well be disastrous. This they are very likely to do if they have not been instructed in the scheme of defence and the nature of the menace.

THE PHILADELPHIA COLLEGE OF PHYSICIANS

Dating from January 2nd, 1787, the College of Physicians of Philadelphia followed the example of the Royal College of Physicians of London in some respects, such as having four censors of whom one is the senior, and in having moved its place of residence on several occasions. To celebrate the twenty-fifth anniversary of the last move Dr. G. E. de Schweinitz, the senior censor and former president, has, with the assistance of the librarian, revised and brought up to date the account of the College he wrote more than twenty years ago, when he was president for the usual span of three years. The College, which has about six hundred Fellows all told, is fortunate in the generosity of its alumni, especially S. Weir Mitchell and W. W. Keen, and in its fine house has many "private study rooms," where the Fellows and their guests, surrounded by the volumes they require, work without interruption. There are a number of rooms named after eminent benefactors, such as the Norris room, which contains more than twelve hundred current periodicals. The library, with 173,000 volumes, has for ten years purchased annually fifteen hundred books, and possesses more than four hundred incunabula. It is the proud owner of forty-four out of the fifty-four recorded editions of William Harvey's works, the copy of the Bologna edition (1697) of the *De Motu Cordis* being the only one now known to exist. Another unique volume is Thomas Cadwalader's *Essay on West India Dry Gripes*, with the original two prefaces, one of which was suppressed.

INTERNATIONAL LEAGUE AGAINST RHEUMATISM

We publish this week an influentially signed letter commending to the notice of our readers the work that is being done by the International League Against Rheumatism, of which Dr. Fortescue Fox is the president. The object of this body is to link together in one organization the isolated workers in rheumatic disease. It maintains a small central bureau and library; it runs a trilingual periodical, *Acta Rheumatologica;* it has committees in many countries; and it holds congresses at which the problems of research and treatment, and the social and industrial aspects of rheumatism, are discussed. But, sad to say, the work of the league is imperilled by a falling off in its modest income. Owing to economic stress most of the participating countries have withdrawn their annual grants. The audited accounts and balance sheet are before us, and it appears from these that the total amount from grants has fallen year by year from 4,242 florins in 1930 to 1,107 in 1934. To tide over the emergency a sum of £1,000 is needed. We share the hope, expressed in the letter printed at page 1237, that this sum will be forthcoming from public bodies and private individuals.

Professor T. R. Elliott, M.D., F.R.S., of University College Hospital Medical School has been appointed a trustee for the Beit Memorial Fellowships for Medical Research in place of the late Sir John Rose Bradford. The other trustees are Sir Alfred Beit, Mr. W. Ormsby-Gore, the Earl of Onslow, Lord Rayleigh, and Lord MacMillan.

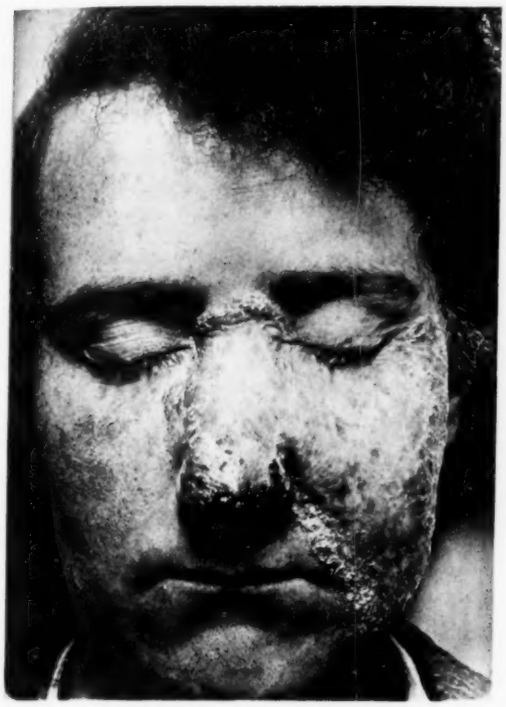

FIG. 1.—Case I (fourteen years' history). March 9th, 1934; before treatment.

FIG. 2.—Case I seven months later.

FIG. 3.—Case III (eighteen months' history). February 27th, 1934; before treatment.

FIG. 4.—Case III some eight months later.

FIG. 1.—Appendix containing polyp removed from Case I

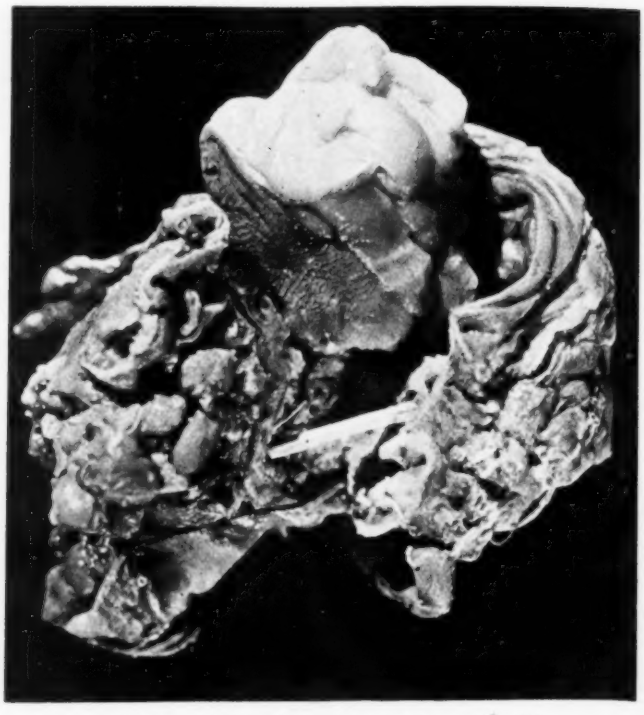

FIG. 2.—Lipoma of caecum removed from Case III

FIG. 3.—Specimen removed from Case V; incompletely reduced intussusception due to cancer of colon.

FIG. 4.—Specimen illustrated in Fig. 3 opened to show growth.

MURIEL E. BELL: A CASE OF CHYLOTHORAX

FIG. 1.—*X*-ray photograph of thoracic duct after injection of lipiodol. No interruption is seen in the main channel, but the injection did not travel back into the small vessels.

FIG. 2.—Photograph of the tumour growth surrounding and constricting the thoracic duct at the point of entry into the subclavian vein.

J. FREUD, D. LUWISCH, AND F. OESTREICHER: ULCERATIONS IN THE STOMACH AFTER ADRENALECTOMY

FIG. 1.—Pyloric end of the stomach with multiple ulcerations.

FIG. 2.—Microscopical picture of the largest ulcer at low magnification.

FIG. 3.—Margin of the ulcer at high-power magnification.

C. F. SWINTON: BILIARY FISTULA FOLLOWING INJURY TO BILE DUCT IN CHOLECYSTECTOMY

Fistula injected with lipiodol shows common bile duct to be stenosed at site of operative anastomosis and no lipiodol passing into the duodenum. Biliary tree is clearly depicted.

HUGH BLAUVELT: A CASE OF MARCH FOOT (PIED FORCE)

X-ray photograph showing ring of callus on shaft of second metatarsal bone near its base.

IRWIN SMITH: LATERAL DISLOCATION OF WRIST

FIG. 1.—*X*-ray photograph taken before reduction.

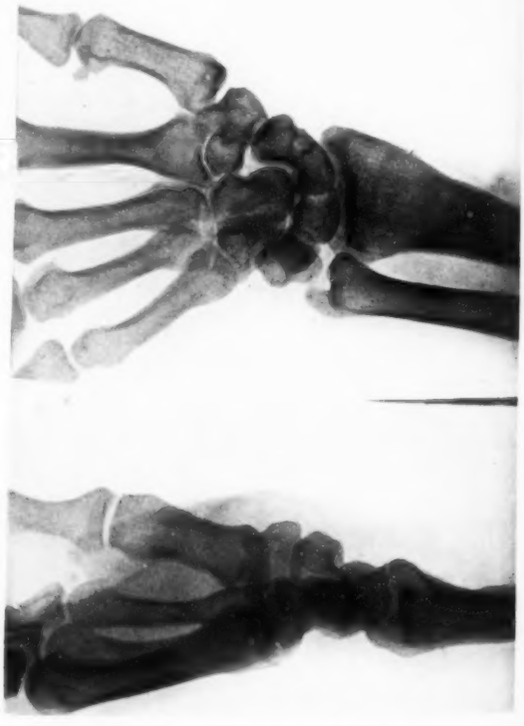

FIG. 2.—After reduction. The splints have been removed.

TREATMENT IN GENERAL PRACTICE

This article is one of a series on the management of some of the major medical disorders met with in general practice.

TREATMENT OF PERICARDITIS

BY

MAURICE CAMPBELL, M.D., F.R.C.P.

The treatment of the various forms of pericarditis is so different that in the main they must be discussed separately. But the general points put forward for the rheumatic cases apply to some extent to all.

General Considerations

The three principal groups are: (1) rheumatic; (2) infective, occurring in general infections, especially empyema, septicaemia, and osteomyelitis; and (3) terminal—in patients dying from chronic nephritis and, less commonly, neoplasms. Pericarditis may also arise as an incident in the course of coronary infarction, when it is generally mild in type and little more than a confirmatory sign of a correct diagnosis. It rarely calls for any special treatment, and may be disposed of at once to avoid further reference. The pain is rarely so severe as to require morphine, and can be eased by local applications. It is thus easier to control and less serious in prognosis than pain due to an extension of the original thrombosis, which is always of very grave significance.

Pericarditis may also be divided according to the nature of the inflammatory change into (*a*) suppurative, seen typically in the infective and terminal groups, though many are at first fibrinous or sero-fibrinous; (*b*) fibrinous, seen typically in the rheumatic group; and (*c*) serous or sero-fibrinous: this group merges into the purely serous effusions found most commonly in congestive heart failure with or without pleural and other effusions. We are not concerned here with pure pericardial effusions, but in one large series of such cases one-quarter were associated with pericarditis. Many of the suppurative type pass through this stage, and many of the rheumatic ones become sero-fibrinous with some degree of effusion. A pericardial effusion cannot be diagnosed as such until it exceeds 250 c.cm. (and often is not diagnosed until it reaches twice this amount), so that the associated pericarditis may be the main clue.

Rheumatic pericarditis is the most important type and the one most frequently met with in hospital; although, owing to the better prognosis, this is not true in post-mortem statistics, where it only forms about a quarter of the total. Pericarditis is often encountered in septicaemia and infective conditions, and these cases form more than half of most post-mortem series. Septicaemia and general infections, where the spread is through the blood stream, and chest infections, where the spread may be direct, are almost equally significant. Of chest infections, empyema is the most important, but simple pneumonia may often be the cause, or the infection may spread upwards through the diaphragm—for example, from a subphrenic abscess. Of general infections, osteomyelitis is especially apt to be followed by pericarditis. In the third group, where pericarditis is a terminal complication in some disease such as chronic nephritis, diagnosis is not often made during life, and treatment is not of much importance because of the general condition of the patient.

The diagnosis is simple when there is a well-marked rub, but often this cannot be heard, or only with difficulty for a short time. As pericarditis usually develops in someone already very ill from the original disease, it may not give rise to any striking symptoms. In rheumatism it should always be thought of if the condition of the patient becomes worse, if the temperature or pulse rate rises without obvious cause, or if there is a complaint of substernal pain. The sudden change in the appearance of a rheumatic child who has been doing fairly well, to the pale drawn face when pericarditis supervenes, is often enough to suggest the diagnosis.

Rheumatic Pericarditis

Rheumatic pericarditis differs from all other types, as it is always associated with myocarditis and endocarditis, and the infection of the muscle is much more serious. Patients with aortic valvulitis are especially liable to this complication. The treatment, therefore, includes the associated myocarditis.

Obviously rest in bed is needed, and as the onset generally shows that it is a very severe infection, this will need to be more prolonged than usual—that is, the patient should be strictly confined to bed for six weeks after the last sign of any active infection. It is one of the rare conditions where complete rest is indicated, and during the early stages the patient should be fed by someone. The room should be light and airy, with something for the patient to look at, as so much stress is laid on complete rest. The bedclothes should be light but sufficient, and care must be taken in removing them when the patient complains of being too hot. The night clothes should be flannel (unless there is any idiosyncrasy of the skin), and because of the profuse perspiration should open completely down the front to make sponging easier. Tepid sponging should be given when the temperature reaches 103° F.

Diet and Drugs

As the illness will be a long one the diet should be as nutritious as possible, and the need for vitamins should be remembered. A light diet should be advocated so long as it does not induce vomiting; but milk will probably soon become the main standby. It is better to give it with soda-water or with sodium citrate, 15 to 20 grains to the pint. Enough barley-water, lemonade, etc., must be added to make the fluid intake up to three or four pints in the twenty-four hours.

Sodium salicylate should be prescribed regularly with at least as much bicarbonate. The large doses sometimes recommended may upset the patient without any corresponding advantage. For a child of 10 the following mixture is suitable:

℞ Sod. sal. ... ... gr. x
Sod. bicarb. ... ... gr. xv
Syrup. aurant. ... ... ʒ j
Aq. ... ... ad ʒ j

ʒ j t.d.s., p.c.

The bowels should be kept open with 1 grain of calomel as a start, and afterwards with confection of senna or salts. Other drugs are only called for if there is sleeplessness, pain, or vomiting. Sponging and suitable clothing will probably be enough to induce sleep, but 10 grains of potassium bromide may be needed.

There is likely to be some substernal pain. Local application such as antiphlogistine may be sufficient to relieve this, but sometimes pain will be severe enough to call for morphine or regular treatment with 3 or 4 minims of tinct. opii every night, or even three times a day. Leeches are sometimes very effective in relieving the pain, but are not desirable on general grounds in rheumatic children. Ice bags should not be used, but any form of local application of heat may be comforting, or if the pain lasts a long time blisters may be tried. Often there is an irritating, painful cough, which is not helped by expectorants, and calls for a mixture of equal parts of syrup. codein. phosphat. and syrup. prun. virg. (1 drachm three times daily). Vomiting is a serious complication if it is not at once relieved by a restriction of diet. If it persists, further dilution of the milk may arrest it, or the following mixture:

℞	Acid. hydrocyan. dil.	♏ iij
	Bismuth. oxycarb.	gr. x
	Sod. bicarb.	gr. x
	Pulv. tragacanth. co.	gr. ij
	Aq.	ad ℥ j

℥ j p.c.

A livid pallor and vomiting, with enlargement of the liver due to congestion, means an extremely grave prognosis; digitalis 10 minims thrice daily (for a child of 10 or 12) is indicated. Digitalis is of no use for slowing the heart rate, and is not advisable unless there is failure.

Exploratory Puncture of the Pericardium

The question of paracentesis of the pericardial sac is often raised, but in rheumatic pericarditis it should rarely be resorted to. Usually there is from the beginning on both layers of the pericardium a thick buttery lymph which cannot be drawn through a needle, and not much fluid. The line between the pericardium and myocardium has become a very indefinite one, and it is easy to damage the muscle. In rare cases in which the effusion becomes the most important feature the heart is gravely handicapped by the increasing pressure. If with the appropriate signs of an increasing effusion the heart rate rises steadily to 160 without a corresponding rise of temperature, withdrawal of the fluid through a needle should be attempted and may bring relief. It is easy to mistake a large dilated heart with pericarditis for a large pericardial effusion, and puncture should rarely be attempted without confirmation of the diagnosis by means of *x* rays.

The best site is the fifth intercostal space a half to one inch inside the outer border of cardiac dullness (or *x*-ray shadow). If this fails it may be repeated in the fourth space just to the right of the sternum. This is the only condition in which any surgical interference with rheumatic pericarditis is justified, and it will rarely arise. However ill a child with rheumatic pericarditis appears, there is always a good chance of survival, and often of a surprising degree of recovery in the condition of the heart. But, however carefully treated, the patient is unlikely to escape without a damaged heart, so that the after-treatment will be prolonged, the patient leaving the bed for only short periods at first and exercise being carefully graduated. Later, long convalescence in the country will be needed.

Infective Pericarditis

The diagnosis of infective pericarditis is even more urgent, because early surgical treatment may be called for and because in the rheumatic cases the treatment already adopted for the myocarditis is in the main right for the pericarditis as well. It is therefore important to know when this complication is apt to arise. Empyema is responsible for much the largest number of cases, and in more than half of these it is a suppurative pericarditis. Osteomyelitis was the second commonest cause in one large series recently published. Pneumonia was next, and then the infections from below the diaphragm—peritonitis and subphrenic abscess. Multiple abscesses (pyaemia) came next, and these five groups were responsible for four-fifths of all the infective group. The two fundamental differences between this and the rheumatic group are the relatively slight involvement of the heart muscle, and the likelihood of there being an effusion and of its becoming purulent.

The general management will be on the same lines as in the rheumatic group, but the period of complete rest and the after-treatment will both be shorter because the damage to the heart muscle is much less. Pain is usually less severe, and there is no indication for treatment with salicylates. The pericardium should be needled (as already described) as soon as the diagnosis is made, to find if the effusion is purulent and what organisms are present. Even in cases of this group two-fifths are of the non-purulent variety at necropsy, but often this is because the infection elsewhere has been so serious that the patient has died from that before the pericardial effusion has become purulent.

In the remainder, where needling has proved that pus is present, the question of surgical treatment will depend upon the other findings. The pericardium is often involved early, before there are multiple abscesses in other parts of the body (about one-quarter of all the cases), especially in those in which the spread is direct—for example, from empyema or subphrenic abscess. In these, and in some of the other cases in which the general condition of the patient is not too bad, resection of a rib and treatment on the same lines as for an empyema is indicated. I have seen such patients make an almost perfect recovery, with the heart showing little abnormality. Unfortunately the underlying infection or the development of abscesses elsewhere often prevents such a good result. When aspiration does not show the existence of pus the treatment will be on the same lines as for rheumatism, and the degree of recovery is likely to be greater because of the slighter involvement of the heart muscle.

Some cases are seen in which the aetiology is doubtful—that is, where there is no evidence of rheumatism and no obvious primary source of infection. They may run a satisfactory course with general medical treatment, and here especially the electrocardiogram will help by revealing the degree of involvement of the heart muscle and the advisability or otherwise of aspiration.

Among other causes tubercle and new growths directly affecting the pericardium must be remembered. Tuberculous pericarditis is not common, and, when it does arise, generally does so as a late complication of other tuberculous processes in the thoracic cavity. It rarely gives rise to acute symptoms, but if the effusion becomes considerable it may lead to increasing cardiac distress just as the rheumatic effusion may. In such a case paracentesis should be performed and may need repeating more than once. I have seen one traumatic case of pericarditis following a blow during boxing, and it ran a very favourable course.

Terminal Pericarditis

In the type of pericarditis occurring as a terminal infection in patients dying from chronic nephritis or cancer the treatment is of little significance because the underlying disease is the main consideration. It usually appears in a patient too comatose to be aware of much pain, and will only be diagnosed by physical signs where these are looked for.

Adherent Pericardium

Adherent pericardium hardly comes into our subject, as the deficiencies arising from this condition are those associated with its chronic effect on the heart. Many cases of pericarditis are followed by some degree of adherence between the visceral and parietal pericardium, but this is not enough to be very important in itself, or sufficiently widespread to prevent subsequent attacks of pericarditis and even of pericardial effusion. But the term is more often applied to the more extreme condition, where both layers of the pericardium are fixed to the surrounding mediastinum as the result of an old extensive mediastino-pericarditis. This adds a good deal to the work of the heart, and is known to be frequently associated with a very high degree of cardiac hypertrophy. No satisfactory local treatment has been devised, and the correct treatment is that of the underlying damaged heart muscle.

EVIPAN SODIUM IN GENERAL PRACTICE

BY

C. M. DOUGLAS, L.R.C.P. & S.

Notwithstanding the many excellent reports on the use of evipan sodium which have appeared in the medical press, I feel that a general practitioner's experience of just over 180 cases may be of some interest. My excuse is that the reports on its use mainly come from hospitals and clinics, where anaesthesia is induced under ideal conditions. The following notes are intended to supplement these reports from a general practitioner's point of view.

In the "little black bag" are carried a 10 c.cm. Record syringe and needles in a spirit-proof case, a rubber-capped bottle of doubly distilled sterile water, a thin rubber tube, with a pair of artery forceps, and, although I have never had occasion to use them, a full box of coramine and icoral.

I should like to criticize the warning which has appeared in so many reports that "evipan should never be administered single-handed except under exceptional circumstances." I imagine that this has discouraged its use by many country doctors. The above statement appeared in a very helpful report on 1,000 cases by Jarman and Abel, under the subtitle "Dangers—The Jaw." One would take it, then, that the danger of the jaw falling forward and interference with respiration resulting was the chief reason advanced against using the anaesthetic single-handed. I first used evipan in July, 1933, at a time when there was little literature published in this country, and, naturally, I went very cannily. Since I hoped for complete muscular relaxation, I expected to find that the jaw also became slack, and for my first fifty cases I always had a colleague with me, who paid particular attention to the jaw. Now I have no misgivings, whether I am alone or not. In my notes I find that in one-third of the cases the mouth remained tightly closed. These were patients who would have had gas and oxygen if it had been available—that is, only a very small dose was given. In about one hundred cases the jaw dropped enough to expose the teeth, and I found that it took a little pressure to depress the jaw enough to cause any interference with the breathing. Anyone who has given about 6 c.cm. for extraction of a few difficult teeth will bear me out when I say that the dentist has often asked whether the jaw could be opened any wider. In the remainder it has been enough to push the jaw up and hold it there for half a dozen breaths. In no case was there any sagging which caused me to ask anyone to devote his whole attention to the jaw. In my experience it requires a complete dose of 10.5 c.cm. to cause the masseters to relax to any extent.

In only one case did the condition of the patient give rise to any anxiety, either during or following the operation. This was in a woman of 26, who had 6 c.cm. for curettage. For three days she complained of her eyes feeling as though she had been staring at the sun. Nothing abnormal was found on examination; fundi and visual fields were normal, and the condition cleared without further treatment.

During the last two years I have used evipan in all types of cases which a general practitioner would meet in the everyday round. My youngest patient was a boy of 13, my oldest a woman of 63. I need not enlarge upon the number of times that a short anaesthetic is necessary during an average week in a practitioner's life. It often means one of two things—trying to get a colleague, who may be on his rounds, or giving ether and doing what is necessary with one eye and both ears on the patient. Single-handed one may have to deliver with low forceps, which often means a faulty anaesthetic, poor asepsis, and an empty feeling in the pit of the stomach. Now one scrubs up, gives the woman enough evipan, scrubs up again leisurely and thoroughly, and with the nurse, or sometimes a "friend" holding the leg in just the required position, delivers with ease and comfort just as one did when a hospital resident. The analgesia which persists for some time allows one to do any necessary perineal repair without hurrying. This, too, seems to me an important point in general practice. Faulty perineal repairs are more often due to dislike of keeping or putting the patient under an anaesthetic, again single-handed, than to lack of skill. I used to give chloroform and ether in practice with the hope that everything would be all right, but now I look forward to minor operations when using evipan. There is a lack of strain which has to be experienced to be believed. The time saved, too, is a great help to the busy practitioner. One does not like leaving a patient profoundly unconscious as, say, after an induction under ether, even in charge of a nurse, until she is partly round. Whereas, under evipan she will respond to a request to open her eyes before the instruments are washed and dried.

The pleasant and quick induction and the recovery, which compares at least favourably with ether, helps in one's relation with a nervous or apprehensive patient, and makes future treatment more trustfully received. I have no wish to cry the praises of evipan in an uncritical mood, but after two years' experience I feel that in most of the cases where one requires a short anaesthetic evipan holds a high place.

I should think that most people modify various techniques according to their own experience. I find that 1.5 to 2.5 c.cm. injected quickly, followed by a pause of forty seconds, gives a pleasant induction and a minimum of jerking. If one is working single-handed it is wiser to inject while kneeling on the patient's palm just in case there should be any jerking.

In my notes I have records of patients who showed a definite delay in becoming unconscious, from 5 to 10 c.cm. taking up to seven minutes to cause unconsciousness. It seemed to compare with what occasionally happens when using nembutal, the patient showing no response to several capsules, until suddenly they take effect—sometimes dramatically. In none of these cases, however, was the return to consciousness delayed beyond what I have come to consider as normal.

In thirty-one cases where the patient was young and healthy I have injected 10 c.cm., although the patient fell asleep with 2 to 3 c.cm. and the operation required a space of time which would have been attained by 5 to 6 c.cm. In nineteen of these the post-operative headache, so commonly complained of, was very slight, and the sensation which many patients describe as "that horrible feeling that you are awake yet can do nothing, not even open your eyes," was not so pronounced. It may be that a patient may, for a pleasant recovery, require more than the minimal dose which the operator requires to work in comfort. In fifteen cases it has been expedient to give a further injection, and I have found it necessary to inject very slowly, since the patient often goes very deep with a very small dose.

I have never used premedication—obviously in many cases it has been impossible. Injecting on a full stomach

seems to make no difference, although, if there is time, I feed the patients on tinned fruit juice and glucose, and only two of the 180 have vomited. One case had been dieted, the other had not.

One fact remains which I have not seen mentioned in reports: many patients, as soon as the injection is completed, adopt a peculiar position of the arms. These become stiff, flexed at the elbows and wrists, with the fingers extended and the thumb adducted across the palm.

Evipan is still in its 'teens, but from my own experience I feel that when it becomes more widely used there will be fewer grey heads among young general practitioners.

England and Wales

Red Cross Clinic for Rheumatism

The report of the medical board for the year 1934 shows that the activities of the British Red Cross Society Clinic for Rheumatism, in Peto Place, N.W.1, have been fully maintained. The range of routine investigations and treatments has continued to expand, and researches are being made in several directions in the attempt to solve some of the problems presented by the different rheumatic diseases. Three morning, five afternoon, and four evening clinics have continued to be held weekly throughout the year by the visiting physicians, in addition to those held by the specialist staff. There were 89,755 attendances and a total of 132,619 treatments in the general out-patients' department, and 8,991 attendances and 16,354 treatments in the private patients' department. There are still a considerable proportion of advanced cases sent up to the clinic, although the importance of referring early cases is becoming more and more appreciated. There is a very real need for adequate facilities for in-patient treatment under the supervision of the visiting physicians at a site, if possible, near the clinic, where any special or detailed investigation as well as any form of physical or other type of treatment that would be contraindicated in an out-patient department can be carried out. The lack of these facilities is proving a definite handicap in the full and effective treatment of the more serious and chronic types of the rheumatic diseases. The provision of a certain number of beds would also obviate the delay that now occurs before patients are able to have the operations advised. There are many patients, especially those suffering from the early manifestations of rheumatoid arthritis, who would derive incalculable benefit if they were lifted out of the depression of their home surroundings and the strain of their everyday life and sent to the country for a lengthy period of convalescence. The clinic tries to take every advantage of the facilities offered by the different convalescent homes, but it is felt that the equipment of a building within reasonable distance of London, of suitable aspect and elevation and accommodating twenty patients and the necessary staff, with grounds large enough for extension, would prove an inestimable boon.

Coroners' Inquests in London

The number of deaths reported to coroners in 1934 in the County of London was 8,548, as against 8,533 in the previous year. Of these, 2,351 took place in hospitals and other institutions, and 721 in mental hospitals. The coroners decided to hold inquests in 3,455 cases, as against 3,543 in 1933. A post-mortem examination by direction of the coroner was carried out in 82 per cent. of the inquest cases, and in 64 per cent. of the other cases in which no public inquiry was necessary. A verdict of murder was returned in eleven cases; four inquests were held in connexion with executions, and there were 690 suicides, a decrease of seventy on the previous year. The number of people who met their death by accident was 1,925, as against 1,965 the year before. There were fifty deaths by drowning. Verdicts of "death from natural causes" were returned in 543 cases, and in seven the verdict was "cause of death unknown." Inquests on newly born children increased from forty-four to forty-eight; in seventeen instances it was decided that the children were stillborn. Excessive drinking accounted for fifty deaths, as against fifty-four in 1933.

Central Midwives Board

At the May meeting of the Central Midwives Board for England and Wales, the application of the public assistance officer of Essex and the matron of the Oldchurch Hospital, Romford, for permission to train fourteen pupils per annum instead of ten was granted, but it was decided to point out that when the training rules, which are at present under revision, come into operation, it may be necessary for the Board to reconsider its decision. A letter was read from the Clerk of the London County Council setting forth the results of the Council's experience of the treatment by midwives of cases of asphyxia by the "sparklet" carbon dioxide apparatus. The following resolution was passed at the meeting, and a copy is to be forwarded to the Ministry of Health:

"That the Board, after consideration of Recommendations 49 (*b*) and (*c*), page 78, of the Departmental Committee Report on the Training and Employment of Midwives (1929), and in the light of further experience in the hearing of cases of alleged breach of its rules by midwives, is of opinion that all new appointments to non-medical positions for routine inspection of midwives should be filled by midwives who are State-registered trained nurses with wide experience of practical midwifery."

Scotland

Rheumatism in Children: Investigation at Edinburgh

Speaking at the annual meeting of the Royal Hospital for Sick Children at Edinburgh, Mr. Colin Black, chairman of directors, said that a biochemical department had been erected in the grounds of the hospital, and a consulting biochemist and trained assistant appointed. An investigation had been carried out in regard to the serious and crippling effects of rheumatism. The importance of this subject might be appreciated from the fact that over 25 per cent. of the young children who developed acute rheumatic infection did not survive to adult life, while a further 30 per cent. were permanently invalided as a result of damage to the heart. The staff was still working at this investigation, which consisted of an analysis of cases treated in the wards of the hospital during the past fifteen years, with a "follow-up" to discover the late effects of acute rheumatism. The medical staff had recommended that vigorous measures should be taken to combat rheumatism, and had suggested that any scheme to deal with this problem in children should have as its three main objects: (1) to prevent rheumatic disease; (2) to prevent recurrence in children already affected; and (3) to care for the children already crippled by disease of the heart. By a gift of Lord Forteviot it had become possible for the directors of the hospital to institute a convalescent home in addition to the one at Gullane, and it was hoped to inaugurate this new home during the present year.

Plaques at Edinburgh Mental Hospital

Six bronze plaques in memory of pioneers in the humane treatment of mental disease were unveiled recently by Sir Arthur Rose, chairman of the General Board of Control for Scotland, at the entrance to the Royal Edinburgh Hospital for Mental and Nervous Disorders. The idea of placing these commemorative plaques was conceived by the late Professor Robertson, who in 1930 caused a bust of Philippe Pinel to be unveiled there by Monsieur de Fleuriau, the French ambassador. The present six plaques are arranged in two groups of three flanking this bust. They represent Dr. William Tuke, Dr. Andrew Duncan, Florence Nightingale, Dorothea Dix, Dr. Gardiner Hill, and Dr. Campbell Clark, and have been presented by various groups of persons in Britain and America who are

specially interested in the treatment of mental disorders. It was William Tuke who founded the famous Retreat at York towards the close of the eighteenth century, while Andrew Duncan founded the Royal Edinburgh Asylum, and perhaps more social clubs and medical societies than any other man. Dorothea Dix, an American, visited mental hospitals in this country about 1850, and made a report which resulted in the Lunacy Act of 1857. Dr. Gardiner Hill was especially associated with the abolition of restraint, and Dr. Campbell Clark's handbook is officially recognized as indispensable in the education of mental nurses.

Glasgow Ear, Nose and Throat Hospital

At the annual meeting of the Glasgow Ear, Nose and Throat Hospital Dr. James Hendry, who moved the adoption of the report, said the past year had been the busiest in the hospital's fifty-five years of existence. There were four dispensary officers on duty every afternoon, of whom each had to see some thirty patients in an overcrowded out-patient department. It was doubtful if work done under such conditions was satisfactory, and it would probably be better for the individual patient if the numbers were smaller. There was also a need for research, but it was open to question whether with so much routine work research could be undertaken. These points suggested that directors of all voluntary hospitals should consider whether too much work was not being required from members of their staffs on a voluntary basis.

Jubilee of Glasgow Dental Hospital

The Incorporated Glasgow Dental Hospital this year celebrates its jubilee, and its record during the half-century has been one of steady expansion. In the first year of the institution the number of patients treated was 3,876, whereas last year it was 72,526 ; in the fifty years of its existence well over a million patients have been treated. Dr. J. Forbes Webster, the dean, at the recent annual meeting of the hospital said that during the year more than 9,000 teeth were treated by conservative methods as against 40,000 extracted. They would like to see those figures reversed. The hygienic condition of the mouth was now regarded as one of the most important items in preserving the health of the community, and it had a great bearing in diminishing the amount of work which the ordinary hospitals required to do.

Reports of Societies

RADIOLOGY IN PULMONARY TUBERCULOSIS

At a meeting of the North-Western Tuberculosis Society held at the Hospital for Consumption and Diseases of the Chest, Liverpool, on May 30th, with Dr. A. ADAMS in the chair, Dr. J. V. SPARKS (London) read a paper on "Radiology in the Diagnosis and Treatment of Pulmonary Tuberculosis," which was illustrated by skiagrams and lantern slides.

Dr. Sparks dealt first with cavities, of which there were many varieties and variations in their appearance, depending on the degree and type of change in the surrounding lung. Thus thin-walled cavities were mostly due to chronic tuberculosis ; those with more reaction around them were due to more active disease. In dry bronchiectasis hairline cavities were found. Cavities might be due to various other diseases—for example, abscess of lung, malignant disease, etc. A case that was difficult radiologically was also usually difficult clinically and pathologically. Errors of interpretation in *x*-ray films were due to (1) films that were poor in quality or too few in number, and (2) undue bias, caused by a knowledge of the clinical data. It was necessary to obtain a correct amount of detail and correct density of films. Accurate control over the various factors of exposure was important to produce a correct and comparative density. A high milliamperage and low kilovoltage were desirable, and a minimum time of exposure ; as low as 1/100 second was practicable with modern apparatus. The focus of the *x*-ray tube should not be too broad—a 6 kW tube was big enough. At the Brompton Hospital a condenser apparatus had lately been installed giving exposures of 1/30 second, variations in kilovoltage after measurement of patients alone being necessary. With this apparatus stereoscopy was not possible. Dr. Sparks then referred to the position of the patient, and pointed out the various disadvantages of the upright, prone, and supine positions. He preferred to have patients seated rather than standing, and spoke well of the prone position. In any case it was important to get the scapulae out of the way. Variations in kilovoltage were important factors, and marked changes in appearance of films followed differences as low as 2 kV. The radiological diagnosis of tuberculosis depended on a recognition of tubercle formation, not on mottling, cavities, etc.

Dr. Sparks showed pictures illustrating various types of tuberculous disease, results of treatment by rest, artificial pneumothorax, phrenicectomy, division of adhesions, sanocrysin, etc., also various non-tuberculous conditions in the chest. He emphasized the value of lateral and anterior oblique views. *X*-ray films should be interpreted as reports at necropsies were made—that is, uninfluenced by clinical observations.

Dr. D. P. SUTHERLAND referred to (1) the importance of detail in technique, (2) value of independent radiological judgement, (3) importance of radiography in the curriculum of the medical student. Dr. P. HEFFERNAN, in a written communication, stated that silicosis could be diagnosed radiologically, and gave a typical skiagram. Dr. G. JESSEL referred to the importance of the tuberculosis officer doing his own radiology, or working in very close association with a radiologist. In considering a diagnosis the whole of the available evidence should be assembled, both clinically and radiologically, and a decision arrived at after due consideration of all factors as in a court of justice. Mr. HUGH REID referred to the importance of screening, and the value of clinical knowledge in considering major chest surgery. Dr. WADSWORTH said that much of the shadowing seen in films of tuberculous persons was really not due to tubercles, but was evidence of an allergic reaction. Boiler scrapers gave definite shadows throughout both lungs. Dr. F. C. MORGAN referred to difficulties in interpretation of pleural rings.

THE HUMAN ORGANISM AND HOT ENVIRONMENTS

At a meeting of the Royal Society of Tropical Medicine and Hygiene on May 16th, with the president, Major-General Sir LEONARD ROGERS, in the chair, Dr. D. H. K. LEE read a paper on "The Human Organism and Hot Environments."

Dr. Lee pointed out that knowledge regarding this problem was available from four sources: (1) direct observation upon man in tropical climates ; (2) direct observation upon man in certain industrial conditions ; (3) experimental observation upon man in artificial climates ; (4) experimentation upon animals in artificial climates. A true understanding was to be obtained only by integrating the evidence from all four. Radiant heat influenced the gain or loss of heat by the integument ; dry-bulb temperature affected the conduction of heat from or to the body ; humidity controlled the evaporation from the integument and respiratory tract ; convection modified conduction and evaporation. When the heat loss from the body was reduced, the organism was faced with the problem of maintaining its thermal equilibrium. The adaptations involved in this attempt fell into four groups: (1) immediate passive reactions, such as rise of skin temperature and increased evaporation of surface moisture ; (2) primary active adaptations, such as cutaneous vaso-dilatation, sweating, and primary water shifts ;

(3) secondary active adaptations, such as rise of body temperature, alterations of endocrine balance, increased pulmonary ventilation, and decreased appetite; (4) other functional modifications introduced as necessary or purely adventitious consequences, such as those experienced by the water balance, circulatory system, electrolyte balance, and acid-base equilibrium.

Dr. Lee then considered the way in which a breakdown might occur in the steady state which must exist between the organism and its environment for its continued biological functioning. As a result of the body's attempts to maintain a thermal equilibrium certain critical events could easily occur: (1) a failure to re-establish thermal equilibrium with resultant hyperpyrexia; (2) circulatory insufficiency; (3) electrolyte imbalance; and (4) super-dehydration. Hyperpyrexia was reached when the mean temperature of the body was such that the continued life of some vital tissue was endangered thereby. The nervous system was usually the first to suffer, the critical temperature being 108° F. Sunlight falling upon the head and neck could be of local importance only when the body temperature was already subcritical. Anything which interfered with heat loss from the body (clothing, inhibition of sweating, dehydration) or stimulated heat production (infection, alcoholism, hyperthyroidism, certain drugs, severe physical work) would predispose to the condition. The symptoms were nearly all explainable on the basis of nerve-cell reactions to severe heat. Circulatory insufficiency occurred when there was a failure to maintain the blood supply necessary for the continuance, without marked impairment, of the bodily activities going on at the time. The author had mentioned previously the great strain thrown upon the circulatory functions by the increased capacity of the vascular system, so that it should occasion no surprise that the imposition of an extra load, such as by exercise, heavy meals, alcoholic indulgence, etc., should bring about taxation beyond the limits of circulatory response. In all cases the nervous system suffered, but symptoms referable to the offending system might often be superimposed. Fainting, collapse, nausea, vomiting, respiratory disturbance, fatigue, and exhaustion would be present in varying proportions. Electrolyte imbalance might be said to arise when the serum chloride concentration was lowered to 360 mg. per 100 c.cm. or less. This would occur when the sweat loss was replaced by water without accompaniment by adequate amounts of chloride. Prodromal malaise and tingling developed into severe cramps affecting the calf and forearm flexor muscles chiefly. Immediate relief was given by the injection of hypertonic saline. The exact causal relations between the lowered chloride concentration and the production of the cramp remained to be established. Super-dehydration would supervene only when water was unavailable.

Dr. Lee, referring to clinical cases observed in the Tropics, stated that careful consideration of the problem, alternately from the physiological and clinical aspects, had led him to five conclusions: (1) that there are four chief crises which might occur in the physiological reactions to heat—hyperpyrexia, circulatory insufficiency, electrolyte imbalance, super-dehydration; (2) that corresponding to these four modes of breakdown there were four clinical syndromes—hyperpyrexia, heat exhaustion, heat cramps, dehydration; (3) that a large number of cases belonged, by virtue of the great majority of symptoms, to one category, but displayed as well symptoms characteristic of more than one syndrome; (4) that a good deal of overlapping between syndromes in any one case was to be expected, in view of the great possible variation in the composition, intensity, and duration of the prime cause (climatic heat elements), and the wide range of reactivity possible to the exposed human organism; (5) that in the diagnosis and treatment of "heat effects," consideration should be given primarily, not to the disease category into which the case best fitted, but to the causation and alleviation of individual signs and symptoms.

Professor LOVATT EVANS, who opened the discussion in the absence of Sir Charles Martin, pointed out that whenever the body was put under conditions which threatened to alter its internal environment it attempted in a remarkable number of ways to oppose the tendency to change. It was known how people accommodated themselves to muscular exercise, also to decreased atmospheric pressure and lowered oxygen content of the air, but he would ask the lecturer how man acclimatized himself to changes in the surrounding temperature, if, as appeared likely, acclimatization did in fact occur. In Dr. Lee's paper there was a suggestion that one of the responses concerned the suprarenals and thyroid, with lowering of the basal metabolism. This was more clearly known from experiments on the influence of a cold environment, and more work might be done on it in reference to hot climates. Sweating was most important, and the result of evaporation was seen in the difference in the rise of body temperature in people working in dry and moist climates respectively. One case at least had been reported from Germany of a soldier having no sweat glands. He asked the lecturer if this was unique or if other cases had been recorded in the literature, also whether gum acacia had been used intravenously as a substitute for saline solutions.

Sir WILLIAM WILLCOX discussed his clinical experience of heat stroke in Mesopotamia during the war, and stressed the cumulative effects of heat. In people exposed for several days to high temperatures the onset of hyperpyrexia might appear suddenly at night, with fatal results. Fatal hyperpyrexia might be engrafted on patients already ill, and its onset in Arabs and Indians always suggested intercurrent infection—especially with malaria—and for this 10 grains of quinine should be injected without delay. Among the British troops hyperpyrexia from purely physiological causes was not uncommon, and in his opinion auto-intoxication was an important factor in its development.

Sir JOHN MEGAW said that adaptation to heat occurred up to a certain point, but that when people were exposed for long periods under unfavourable conditions resistance to environmental heat was diminished. He agreed with Dr. Lee that there was no condition of sun stroke as distinct from heat stroke.

Dr. G. P. CROWDEN stressed the importance of conducting large-scale experiments and of not generalizing from the experience of a limited number of human beings. In the Rand mines it had been found that miners could be grouped according as their temperature rose from 1° to 5° F. when exposed for a definite period when the wet bulb was 90% and the dry bulb 95%. It was found from an analysis of two years' records that all the cases developing hyperpyrexia occurred in men whose reaction had been over 4° F. in preliminary tests, while the great majority of cases of heat collapse also developed in this group. Individual variation must therefore be taken into account.

Sir LEONARD ROGERS said that in 75 per cent. of his cases in India the onset was during the hot time of the day, and that in the North-West and Central Provinces heat stroke came on when the mean temperature rose to 108° F. which meant a maximum temperature of 20° F. above blood heat: in Bengal, on the other hand, when the relative humidity was over 60% heat stroke developed when the temperature rose to 90° F. with a maximum temperature of 108° F.

The report of the Institute of Physics for the year 1934 states that, in addition to the normal work of the institute and its local sections, which includes certain duties carried out on behalf of the participating societies, new activities were commenced. These included the holding of informal discussions on industrial physics and the completion of the scheme for the training of laboratory assistants and the issuing of certificates of competence in laboratory arts. The report shows that employers are making greater use of the services of the panel of consulting physicists and of the appointments register. At the end of the year the institute took over the publication of the *Journal of Scientific Instruments* from the Cambridge University Press.

CORRESPONDENCE

The International Campaign Against Rheumatism

SIR,—An active campaign against chronic rheumatic disease is now being prosecuted in many countries, and with encouraging results. We desire to call the serious attention of your readers to the efforts of the modest organization to which this widespread activity is largely due.

The first International Committee on Rheumatism was appointed in Paris just ten years ago.* A few months later (November, 1925) an International Conference on Rheumatism was held at the house of the Royal Society of Medicine, and addressed by Sir George Newman on behalf of the Ministry of Health, and Dr. Kahlmeter of the Board of Pensions in Sweden. Reports were presented from England, France, Holland, Denmark, Switzerland, and Rumania

Following this conference the International League against Rheumatism was constituted as an independent body, with a central council consisting of national representatives, and began its task of associating in one organization the isolated workers in rheumatic disease. Meetings were called and committees were quickly set up in many countries. A periodical journal, the *Acta Rheumatologica* in three languages, was produced and widely circulated, and a small central bureau and library were opened.

International congresses, arranged with the help of the national committees and attended by Government representatives from the countries seriously affected by rheumatic disease, have awakened great interest in the medical profession and in industrial and social bodies. The problems of research and treatment, together with the social, economic, and industrial results of rheumatism, have been examined at these meetings—in Prague, Budapest, Liége, Paris, and (1934) Moscow. The next congress is due in Sweden in 1936.

Fortunately the costs of the journal have in most years been nearly met by personal subscriptions, but, apart from the journal, the wide activities of the League, in which there is no salaried officer, entail a certain (very moderate) expenditure. This has been until lately met by contributions from a number of national groups. Unfortunately now, owing to widespread economic difficulties, most of the countries connected with the League are unable to continue their grants. The actual income in 1934 has fallen, on this account, to one-third of what it was in 1931. The annual deficits (£119 for 1934 and £316 for previous years) now amount to £435, and have been met by officers and friends of the League.

The famous report of the British Ministry of Health in 1924 on the incidence of chronic rheumatic diseases called attention to the extent and gravity of the rheumatic problem in northern countries, and this report is still regarded as a milestone wherever rheumatic diseases are being seriously studied. Britain gave this lead and has done excellent work in following it up. It is, however, rather humiliating that while smaller nations, known to be distressed, have subscribed, or, if unable to subscribe, made up deficiencies from private sources, this country, which has benefited not a little by the work of the League, has not come forward with any financial support. Probably this is an accidental oversight, and we should be proud to shoulder our share of the burden.

At the last meeting of the Committee on Chronic Rheumatic Diseases appointed by the Royal College of Physicians it was resolved: "That this Committee recognize the value of the work being done by the International League against Rheumatism, and consider it worthy of the support of all interested." A sum of £1,000 is needed to tide over the emergency until more normal conditions are restored. We hope that this sum will be forthcoming from public bodies and private individuals who may be willing to supply the need. Contributions may be sent to Mr. A. C. Timbrell Fisher, *M.C.*, F.R.C.S., 59, Montagu Square, W.1.—We are, etc.,

R. FORTESCUE FOX, President of the League.
HORDER
HUMPHRY ROLLESTON
F. R. FRASER
W. H. WILLCOX

London, June 4th.

* At the annual meeting of the International Society of Medical Hydrology (April, 1925).

Treatment of Bacillary Dysentery

SIR,—To those who were engaged in the care and treatment of cases of bacillary dysentery during the Great War it is instructive to compare Dr. H. W. Corner's excellent "summary of treatment" in the *Journal* of June 8th with the experience acquired during 1916 and 1917 in the treatment of Serbian soldiers; and though his material was presumably very different the general results of treatment coincide very closely. A few comments, however, may not be without interest.

Upon the all-important question of diet Dr. Corner's conclusions and advice are identical with those arrived at after treatment of many hundreds of Serbian patients, with one exception. That "milk should never be given either fresh, boiled, or disguised" accords with Macedonian experience; milk soured by cultures of *Bacillus bulgaricus*, on the other hand, proved an invaluable food, well borne by the stomach, and apparently of therapeutic value. This food was brought to notice by the demand of the patients, to whom it was an accustomed article of diet, and whether it would prove to be of equal value in dealing with patients unaccustomed to it may be matter for consideration.

Although other preparations of morphia and opium, by injection or by mouth, were discarded as being inefficient and harmful or dangerous, pain and distress during the early stages of the disease were relieved by small doses of chlorodyne given by mouth, and this was not productive of harmful effects. Of serum, when ample supplies became available the practice was to use a high dosage—80 to 100 c.cm.; and although it was seldom that the patient arrived at hospital during the earliest days of an attack, those who received adequate dosage usually derived benefit, whereas among those few who were "warded" at the commencement of an attack improvement was usually manifest within forty-eight hours of receiving the serum. The patient thus treated subsequently suffered from pain in the jaw and inability to open the mouth, thereby running the risk of antitetanic treatment before the condition was recognized as serum sickness, in which the left mandibulo-maxillary joint was swollen and painful.

A feature which occasioned distress and exhaustion in many patients was hiccup, happily relieved by sips of champagne and an epigastric blister, nor did it appear that the nature of the remedy was responsible for the onset of this symptom, and the pain from tenesmus was relieved by rectal injection of three or four ounces of olive oil, with which was incorporated one drachm of ichthyol, a practice pursued also in some of the hospitals in Egypt. Distension was sometimes relieved by kaolin in half-ounce doses, combined with charcoal or with one drachm of bismuth salicylate; and in cases which passed into a subacute or chronic state with persistent diarrhoea, abdominal pain, and profound wasting, rectal irrigation with weak solution of permanganate of potash was very

helpful. The strength used was usually 1 in 1,000 or 1 in 2,000. Dr. Corner's admonition, however, holds good in this as in most treatments of disease: "There can be no fixed rule"; the features of the individual case must be primarily considered.—I am, etc.,

A. E. CARVER.

Torquay, June 9th.

Bloodless Tracheotomy

SIR,—I gather from Dr. Joe's excellent article on diphtheria (*Journal*, April 6th, p. 711) that general practitioners are still confronted occasionally with the necessity for emergency tracheotomy. Mindful of many trying experiences as a house-surgeon before the advent of antitoxin, when the opening of the trachea through a pool of blood was a weekly event, I venture to draw attention to an exceedingly easy and bloodless method, which will save the inexperienced many a bad quarter of an hour—indeed, the trachea of a small infant can be opened in two minutes in a dry field. I have employed the method many times during the past forty years without the least trouble. The details will be found on page 339 of the tenth edition, 1931, of the *Index of Treatment*, and also in the forthcoming edition, in an article on foreign bodies in the air passages. —I am, etc.,

E. B. WAGGETT.

London, W.1, June 6th.

Wood's Light and Ringworm of the Scalp

SIR,—The use of Wood's glass light in the diagnosis of small-spored ringworm of the scalp is now fairly generally known. For those who are not conversant with it one might describe its origin as the passage of ultra-violet rays—generated by a mercury vapour or carbon arc lamp and preferably including as small an amount as possible of infra-red rays—through a dark purple glass containing a large amount of oxide of nickel, which screens off almost all wave-lengths within the visible spectrum, allowing the passage of those with a long wave-length of about 3,650 Ångstrom units. Hairs infected with the microsporon fluoresce with a brilliant pale green colour when such a beam of rays is allowed to shine on the scalp in a darkened room. (Endothrix infections of the hair do not fluoresce.)

What has prompted me to write this communication is that I had several cases in which there were no clinical signs of ringworm of the scalp sent to me at the Leicester Royal Infirmary with a note stating that they all had ringworm badly, as they showed marked fluorescence when examined with Wood's light. Naturally I was perturbed, and active cerebration into the matter ensued. As a result of this I would like to point out the necessity of thoroughly cleansing the scalp, preferably with green soft soap, to free it from all grease, scales, etc., as these may fluoresce. Among various substances that are apt to be put on the scalp which were tested by me, and their reactions, were the undermentioned:

Substance Tested.	*Fluorescence and Colour of Same.*
Vaseline as "solidified brilliantine."	Bright violet blue.
Quinine hydrochloride and quinine sulphate in solutions.	Very brilliant light blue (powder blue).
Liquid paraffin.	*Nil.*
Lanoline.	*Nil.*
Castor oil.	*Nil.*
Stearin.	*Nil.*
Mucilage of tragacanth as "non-greasy hair cream."	*Nil.*
Fluid brilliantine.	Slight medium blue, some brands *nil.*
Menthol in spirit.	*Nil.*
Mineral oil (well-known brand used for engine oil in motor cars).	Marked light blue.

The prettiest chromatic effect was seen with a solution of quinine sulphate of 0.125 per cent. strength as "eau de quinine," which is sometimes used as a hair tonic. This shone like a light blue opal when a spot of it was put in the beam. I tested several brands of motor lubricating oils, which are mineral, and all gave a positive reaction as opposed to vegetable oils, these latter being negative. I also noticed, when carrying out these tests, that particles of starch on my white cotton surgeon's coat fluoresced.

It might appear that ringworm fluorescence is activated by contact of the microsporon with the keratin of the hair, as growths of it on Sabouraud's medium *in vitro* do not display this quality so well as affected scalp hairs do. This idea is strengthened by the fact that mildew on woollen yarn, which contains keratin in its composition, also fluoresces.

I remember reading a letter in the *Journal* from Dr. Norman Burgess of Bristol some few months ago, stating that seminal stains fluoresce. I can confirm this statement; they show a faint bluish colour. But, as among the few substances I have enumerated above, it will be noted that some are likely to be associated with such stains in testing clothing, etc., in suspected medico-legal cases of rape; one must therefore be wary of being too definite as a result of this test alone. I would like to add that mildew and stains of mineral oil in hosiery, prior to dyeing, are two of the commercial uses for Wood's light used in this progressive city.

This communication is obviously somewhat lacking in many technical details of a minor nature, but my excuse for inflicting it on you is to serve as a warning note not too hastily to diagnose fluorescence of the scalp under Wood's light as ringworm without having thoroughly cleansed it first, and secondly to point out that all that fluoresces is not fungus.—I am, etc.,

F. A. E. SILCOCK, M.D.,
Honorary Dermatologist, Leicester Royal Infirmary.

Leicester, June 2nd.

The Cortical Mastoid Operation

SIR,—In the *Journal* of June 8th Mr. Roy Salkeld publishes notes of ninety-one cases of the cortical mastoid operation. His results are admirable, but I challenge him on the question of the necessity for operation in many of his cases; seventy-three of them were operated on in the period two to eight days after the initial symptom. During my first 200 mastoid cases I not infrequently opened the bone in the first week of the infection, not having learned to differentiate the initial tenderness of an otitis from the secondary tenderness of a mastoid abscess. Most of the cases did well enough, but a few gave great anxiety by reason of a swinging temperature, and three died of sepsis. I now realize that opening up acutely infected tissues before mobilization of their natural defences is a grievous surgical error.

In my last 300 cases I have made a strict rule never to open a mastoid under seven days from the onset of symptoms, and in actual practice I seldom do so under twelve days; my patients and myself have slept more peacefully as a result, for there has been little or no anxiety about any of the cases, and I have not lost one of them, apart from those presenting meningeal symptoms at the outset.

It cannot have escaped the notice of aurists that the cases which they call "cooked," or "sat upon," appearing with an outstanding ear which even the hospital porter can diagnose as a mastoid abscess, are the very cases which make a rapid and satisfactory convalescence. The defences have been mobilized. Now, on account of the risk of internal rupture, no ear should be allowed to go on to this stage of outstanding pinna; an intelligent

consideration of the temperature, pain, and discharge nearly always gives ample warning. But it illustrates the principle that the later one may safely operate the better is the prospect of an uneventful recovery. I would draw attention to the brilliantly wise remarks of Mr. Charles Donald in the *Journal* of May 11th on the conservative attitude towards acute pyogenic infections. He concludes with the bright, practical remark: "Where there isn't pus, don't let it out!"

I hope Mr. Salkeld will reply to my letter; but not for another ten years. His conversion is already foreshadowed when he makes the observation that "in those patients in whom the temperature was high at the time of operation it often remained raised for some five or ten days afterwards."—I am, etc.,

D. A. CROW, M.B., Ch.B.,
Aurist, Royal Sussex County Hospital, Brighton.

Hove, June 10th.

Selenium in the Treatment of Cancer

SIR,—Dr. A. T. Todd seems to be blind to the fact that in whatever form selenium compounds are introduced into the body their ultimate fate is to be reduced to the metallic form and to be deposited in the tissues—for example, in the liver or in the capillaries. In toxic doses in animals such particles may plug the lung capillaries, and the animal dies in a state of marked dyspnoea from this cause. Though similar to sulphur chemically, selenium is closely analogous to arsenic pharmacologically, producing the same paralysis of the capillaries and "identical changes in the blood-forming organs" (Sollmann: *Man. of Pharmacol.*, 1932, p. 1007). In its action its salts "produce symptoms resembling those of the heavy metals and arsenic in many points" (Cushny: *Pharmacol. and Therapeutics*, 1934, p. 714).

Injections according to Todd's method (with clean syringes!) have in my cases frequently been followed by fever and marked pain in the growth: even he admits to seeing about twelve "shock reactions" in a year, so undoubtedly there exists a close resemblance of his injection method to protein therapy. The toxicity is largely dependent on the dose given. Dr. Todd is a believer in almost homoeopathic dosage. His *x*-ray dose is about a tenth of an erythema dose, and his radium dose (weekly) about a ten-thousandth of that sometimes given by intravenous injection, or a fifty-thousandth of that taken by the mouth at various radio-active spas daily for weeks on end!

I wish Dr. Todd and Dr. Hernaman-Johnson had replied more fully to the ten or more points raised in my letter of May 25th (p. 1097). I can suggest to Dr. Todd that if he will re-read it he will find it not the "agglomeration of misstatements" he dubs it. He has still to reply to my statement that experimentally and clinically in cancer selenium has had "regularly and consistently negative results"—to quote Kolmer on Keysser's results subsequent to his first experiments with Wassermann (Kolmer: *Chemotherapy*, 1926, p. 438). With the heavy metals, or metal-resembling substances, "no matter what preparation has been used, it has been possible to produce therapeutic effects only by the use of relatively enormous doses . . . scarcely lower than the lethal dose" (loc. cit.). The safe but often very painful dose scheme used by Dr. Todd has led in the eight cases I have treated to apparent retardation of growth in four cases temporarily, then to a negative result and death in all but two—one now going downhill. The best case is that of a patient with a liver tumour (not histologically diagnosed). This is a poor result after the expenditure of a great amount of time and trouble on the part of patients and collaborators. I believe small generalized *x*-ray dosage would have led to as good temporary alleviation with much less difficulty and avoidance of painful injections and reactions in the patients selected for trial of the method.

One point raised by Dr. Hernaman-Johnson I have investigated more fully: it is his statement that as a rule a period of two years elapses between operation and any local recurrence in breast cancer. Examination of my Middlesex Hospital statistics of scar recurrences for the years 1925 to 1932 inclusive shows that there were 120 such patients, and in seventy of them (58.3 per cent.) the recurrence had appeared in the first or second year following operation. The "rule," therefore, is that the first two years are more dangerous for recurrence than any two subsequent years. All the more reason why adequate treatment should be given immediately after operation. Dr. Pfahler's methods are based on his "saturation method" course, which aims "at keeping the tissues saturated to the limit of normal tissue tolerance for three or four weeks" (Pfahler and Vastine: *Amer. Journ. Roent.*, 1935, p. 41). This is a very different treatment from the small-dose method usually advocated by Dr. Hernaman-Johnson for breast cancer. In conclusion, both he and Dr. Todd believe in the *indirect* theory of radiation action in cancer; but could they controvert the many points enumerated by Lacassagne in favour of the direct theory (*Radiol.*, 1928, xi, 393)? Both their theory and their practice stand on shaky foundations, and many further proofs—not assertions—are required before acceptance is possible.—I am, etc.,

J. H. DOUGLAS WEBSTER.

London, W.1, June 8th.

Examination of Tuberculosis Contacts

SIR,—I have read with interest the letter from Dr. R. D. B. Wright in the *Journal* of June 1st, following the correspondence of Dr. E. Ward and Dr. Halliday Sutherland. I do not propose for one moment to elucidate the virtues or otherwise of the tuberculosis officer. I am, however, whole-heartedly in sympathy with the remarks of Dr. Wright as regards the scant support the prevention of tuberculosis receives in proportion to the modern and up-to-date methods of diagnosis and treatment.

Patients can discharge themselves almost with impunity from tuberculosis institutions and infect their offspring, while advanced cases are still rampant among the population without discovery. *X* rays, which we have heard so much about of late in highly technical terms, no doubt have their uses. I suggest it will be time enough to get excited and laud their praises when cases of tuberculosis, which are almost possible to diagnose with the eye, let alone the stethoscope, are dealt with. We must be sure we can walk properly before we attempt to run, and once and for all get down to realities and feel sure we are doing all that is required under the old regime before resorting entirely to the modern and more spectacular methods.

The annual report for the year 1933, published by the Chief Medical Officer to the Ministry of Health—p. 124, notification of tuberculosis—gives one much food for thought. As regards modern treatment, it would be interesting to know how many cases of pleural effusion and empyema can to-day be attributed to the tubercle bacilli and how many to modern treatment. One cannot help feeling impressed at the rejoicing to-day in the tuberculosis world over the diagnosis of an early case (which is not the infectious one), compared with the calm resignation displayed over the ninety-and-nine highly infectious ones that roam about infecting the public unheeded.—I am, etc.,

G. M. MAYBERRY.

Dagenham, June 4th.

Treatment of Warts

SIR,—In the *Journal* of June 1st Dr. Stuart McAusland describes his method of treating inveterate warts by the application of elastic adhesive bandage. His method is interesting and no doubt effective, but I venture to suggest that the application of an ointment of 15 or 20 per cent. salicylic acid in vaseline, continuously and liberally applied on small pieces of white lint over each wart, would have cured his patients in much less time than the ten to eleven weeks required using his method of treatment.

Dr. McAusland asks for an explanation of the cure, and says he finds it difficult to understand why elastic adhesive bandage application should be an epithelial destroyer in the case of warts, while it acts apparently as an epithelial growth promoter in the case of varicose ulcers. It is universally agreed that body clothing should be light, loose, and absorbent, in order that the skin should receive air ventilation and that free moisture should be removed. Now elastic adhesive bandage, by virtue of its layer of rubber material and by its intimately close application, completely occludes ventilation and evaporation over the skin areas to which it is applied. The epithelial cells which are supplied with moisture by the underlying arteriole and capillary systems can no longer be freed of moisture, the supply of which still continues. The cells therefore swell up, die, and disintegrate, and, in fact, become the "mushy epithelial debris" that Dr. McAusland describes. This phenomenon is also to be noticed in those cases in which elastic adhesive bandage is applied over any clean or septic wound for any length of time. Those who use this useful (occlusive) dressing will frequently notice how the skin areas around a wound become deadened and soft, and peel off in white opaque layers. Unless this process is allowed to become excessive it is no detriment to the method of dressing.

With regard to the rapid epithelial growth in varicose ulcers—and, in fact, in all open wounds, either clean or septic—that takes place under an elastic adhesive bandage, an additional important factor is introduced. This is the accumulation of sero-pus that exudes from the wound to collect and form a definite fluid layer between the bandage and the wound. The writings of others and my own deliberations have led me to the conclusion that this layer of sero-pus very materially assists epithelial growth, by reason of: (1) the formation in itself of auto-immunizing bodies specific to any infecting organisms in the wound, thus counteracting destructive forces; (2) its properties as a nutrient fluid for the newly formed granulation and epithelial tissues; (3) its action as a protective cushion between the wound and the dressing, thus eliminating friction; (4) its low heat conductivity, thus helping to maintain the optimum temperature for growing tissue; (5) its presence preventing injury to new and tender tissues, ordinarily often damaged during the removal of dressings.

In attempting to explain the apparently different phenomena that occur when elastic adhesive bandage is applied to epithelial surfaces, as in warts, and to ulcerative or granulation surfaces, as in varicose ulcers, the important point to realize is that in the former cases there is actual intimate contact of bandage to epithelium, while in the latter cases the fluid layer is interposed. I think Dr. McAusland is wrong when, referring to the bandage in the case of warts, he says "it seems to destroy abnormal epithelium, substituting for it normal skin." I suggest that what really happens is that the abnormal epithelium is destroyed in layers till the corium is reached, after which normal epithelial growth takes place. I would also suggest that in the use of his method much normal surrounding epithelium is destroyed, but that it regenerates as fast as it is destroyed. If he continues to use the method sufficiently often he will strike the case where normal epithelium will be destroyed faster than it will be replaced.—I am, etc.,

Derby, June 4th. E. C. DAWSON.

Abdominal Pain in Children

SIR,—I would call attention to a cause of abdominal pain in little girls. This is to be found in the elastic braid in the waist of the knickers. This elastic braid is usually narrow and does not retain its elasticity for long; in the poorer classes, when this occurs, instead of replacing the braid with new, a knot is taken up in the slack of it. The child then goes about with a tight constriction round the belly, producing in some cases mild discomfort or actual pain. On relief of the constriction the pain soon disappears. It seems strange that the parent has often not found this out for herself, but cases still come to the medical attendant's notice.—I am, etc.,

JOHN S. CLARKE, M.B.

Weobley, Herefordshire, June 9th.

The Lying-down Bath in Pregnancy and Labour

SIR,—I have just read Sir Comyns Berkeley's article in the current number of the *Practitioner* on "The Management of Normal Labour." In that article there are some inconsistencies that one would hardly expect from a specialist of his experience.

He rightly gives excellent directions for the preparation of the labour bed, such as the removal of valances, curtains, unnecessary furniture, etc. For the preparation of the patient before labour he again gives excellent advice, particularly when he advises a standing-up or seated bath during the last week; but the fault in this direction is that it comes too late, since infection contracted from a lying-down bath remains practically for five to six weeks after that bath before the infective germs can be eliminated by the action of the antibacterial processes of the vaginal mucosa. By his directions on this point he tacitly agrees as to the danger of infection from a lying-down bath. Nevertheless, to my astonishment he advises that during the first stage of labour a bath at a temperature of 100° should be given, pre-eminently the stage when contaminated water is most likely to be sucked in by the vagina. Surely if it be advisable not to give a lying-down bath during the last week, it should be imperative not to run the greater risk of a lying-down bath during labour. The dirtier a patient and the more necessary it would be in other circumstances for a good lying-down bath, the greater is the danger of such a bath in labour. It is never necessary to give a lying-down bath, as any woman can be thoroughly cleansed with soap and hot water in a standing position.

In New Zealand the Department of Health has prohibited these lying-down baths in the hospitals under its control, with very good results. In Switzerland (Zurich) they are also prohibited. They may be prohibited elsewhere, but I don't know where.

It is so obvious that the bath water must become badly contaminated from the skin of a patient that I think there can be no argument about the inadvisability of allowing lying-down baths for some considerable time before labour begins, at least five or six weeks.

With the present death rate from maternal mortality standing as high as it does, every possible source of infection should be strictly eliminated and every form of interference with the parturient canal should be limited as far as possible.

Every case of confinement should be treated as a surgical case, with a more or less open wound; and no surgeon who knows his job would dream of allowing unboiled water (to say nothing of water at 100°) to touch the wound: much less would he allow water contaminated by the skin of the whole body of the patient to do so.

It is a strange thing that native women who bore children in their original savage state had a maternal mortality rate of practically zero, but when these races adopted the civilized code the maternal death rate rose rapidly and high. The inference is obvious.—I am, etc.,

London, S.W.16, June 5th. J. KIRKLAND.

Modified Diphtheria following Immunization

SIR,—In the *Journal* of June 1st (p. 1123) Dr. Sarah Harris describes an attack of modified diphtheria in an immunized child. In her description I find nothing to prove that the actual condition was not an ordinary tonsillitis occurring in a diphtheria carrier. Further, no information is given as to whether the child was Schick-tested subsequent to the three injections of T.A.F. It is well known that a small proportion of children are not completely immunized by three injections of any of the recognized prophylactics, even after six months. For Dr. Harris's information, all who have done much of this work over any period of time have met with cases of modified diphtheria among children previously believed to be immune. The main thing is that such attacks are modified, usually of trivial nature, and, more important still, that grave sequelae or death from the disease *are* practically unknown. I hope to publish conjointly with Dr. E. H. T. Nash a careful analysis of the results of five years of this work, including accounts of such cases as contracted or appeared to contract diphtheria. When fully investigated the former class will be shown to be very small, though their occasional occurrence will be frankly admitted.—I am, etc.,

London, S.E.5, June 1st. GUY BOUSFIELD, M.D.Lond.

The Services

DEATHS IN THE SERVICES

Lieut.-Colonel John Dennis Thorpe Reckitt, R.A.M.C. (ret.), died at Giggs Hill Green, Thames Ditton, on May 27th, aged 80. He was born at Hull on January 9th, 1855, was educated at Leeds, and took the L.R.C.P. and S.Ed. in 1877, the L.S.A. in 1878, and the M.R.C.S. in 1883. Subsequently he also took the M.D.Brux., with honours, in 1910. Entering the Army as surgeon on July 29th, 1882, he became lieutenant-colonel after twenty years' service, and retired on November 2nd, 1909. He served in the South African War in 1899–1901, when he took part in the relief of Ladysmith, including the actions at Colenso, Spion Kop, Vaal Krantz, Tugela Heights, Pieters Hill, and Laings Nek; and later in operations in the Transvaal, was mentioned in dispatches in the *London Gazette* of January 20th, 1900, and February 8th, 1901, and received the Queen's medal with six clasps.

Major Augustus Joseph Hickey, *M.C.*, R.A.M.C., of Kilkee, County Clare, died at Plymouth on June 4th, aged 48. He was born on May 27th, 1887, educated at Westminster Hospital, and took the M.R.C.S. and L.R.C.P. in 1910. He entered the R.A.M.C. as a temporary lieutenant on May 7th, 1915, and became temporary captain after a year's service. On January 1st, 1918, he joined the R.A.M.C. permanently, becoming captain on November 7th, 1918, and major on May 7th, 1927. He served in the war of 1914–18 and gained the Military Cross.

Obituary

JOHN HALL MORTON, M.D.

Governor and Medical Officer, Holloway Prison

We regret to announce the death, in his quarters at the prison, on June 6th, of Dr. John Hall Morton, governor and medical officer of Holloway Prison. Dr. Morton, who would have been 52 years of age next month, was born in Limerick, and received his medical education at Trinity College, Dublin, graduating M.B., B.Ch., B.A.O. in 1907. He was soon attracted to the Prison Medical Service, and to prepare himself for this career worked for several months with Connolly Norman at Richmond District Asylum, being later appointed assistant medical officer at Warwick County Asylum. He joined the medical staff at Liverpool Prison in 1909, and in 1912 was transferred to Aylesbury Prison, which served at that time as a Women's Prison, a Borstal Institution for girls, and also as a State Inebriate Reformatory for women. In 1914 he went to the Borstal Institution for lads at Rochester, and returned to Aylesbury as governor and medical officer in 1919. In 1921 he was promoted to Holloway Prison, and from 1930 also acted as assistant to the Medical Commissioner for Prisons during the latter's absence from the Home Office.

Dr. Morton's knowledge of the psychology and habits of women criminals was remarkably extensive, and the reliability of his judgement on these matters was well known to the officers of the law with whom he came into contact. A recent example of this occurred at the Old Bailey when, following his evidence as to the health of an elderly woman who had spent a large part of her life in prison, the judge, realizing the skill and care which Dr. Morton would bring to the case, passed a substantial sentence. Alcoholism was a subject on which he was an expert, and as a result of the special studies which he had made on the victims of this habit, he once suggested that they should be segregated in colonies where they would have outdoor employment and be for the most part self-supporting. Those willing to undergo special treatment would have it, the voluntary basis of such an arrangement allowing the patient's co-operation to be secured—a *sine qua non* for successful treatment. The judicial system of dealing with alcoholic persons was another matter on which Dr. Morton held strong views, for he believed that short sentences with an option of a fine were a proved failure. During his governorship at Holloway he succeeded in having mirrors installed in all the women's cells. At the time he stated that they had been long in realizing how important the mirror was to a woman: the inmates would take extraordinary pains to devise something which would reflect their faces. Dr. Morton's evidence figured in the recent Stoner and Rattenbury trial, but as he was then suffering from his final illness he was unable to appear in person.

Dr. W. NORWOOD EAST writes: Dr. Morton's success as a prison governor and medical officer was largely due to his unflagging energy, constant devotion to duty, and cheerfulness, which were happily combined with firmness, tact, and a desire to promote the welfare of all under his charge. He never flinched from his responsibilities, and never allowed his sympathies to influence his judgement. It was a fortunate coincidence that he was at Holloway Prison when it was decided to introduce State-registered nurses on the staffs of the women's prisons. He threw all his accustomed energy into this innovation and contributed largely to its success, as all the sisters passed through Holloway before their transfer to the provincial prisons. He was a loyal, unselfish, and considerate

colleague, and his even temperament was particularly suited to the control of a large institution. His wide experience of women prisoners and his knowledge of mental diseases made him a valued and trusted witness in the Criminal Courts. He received the King's Jubilee Medal last month in recognition of his services. He carried out for a committee on the Social and Economic Aspects of the Drink Problem a careful investigation into 250 cases of serious crime, and contributed an article on alcoholics in prison to the *Howard Journal* in 1929. A paper by him on female homicides was published last year in the *Journal of Mental Science*, while he recently gave an address on malingering to the North London Medico-Chirurgical Society, and was its president at the time of his death.

Dr. Morton had been for many years a prominent Freemason, and was secretary of the Lodge of Erin, having previously served as Master. He later attained London rank. He leaves a widow, a daughter, and a son. Among the large number who attended the funeral at Highgate Cemetery on June 8th were Mr. Justice and Lady Humphreys, Sir Percival Clark, Mr. Danford Thomas, the Prison Commissioners, several prison governors, chaplains, and medical officers, and representatives from Holloway Prison.

WILLIAM STUART-LOW, F.R.C.S.

Consulting Surgeon, Central London Throat, Nose and Ear Hospital

We are indebted to Dr. DAN MCKENZIE for the following memoir:

The life of William Stuart-Low, for many years a colleague of mine at the Central London Throat, Nose, and Ear Hospital, is a striking example of what is, I fear, bound to become more and more rare in medicine as its special departments increase in number and complexity—namely, the rise of a man from quite obscure beginnings to a prominent position in the West End of London. He qualified as L.R.C.P.Ed. at the age of 27, as long ago as 1884, after having scraped together by his own exertions as an unqualified assistant enough to pay his class and examination fees. Endowed with a stalwart physique and the Lowland Scot's determination to overcome by sheer weight of character the handicap of the *res angusta domi*, he was tackling and overcoming his obstacles, financial and educational, at an age when most men are at play or asleep. On one occasion, he told us, before going up for his final examination for the Edinburgh qualification, he sat up reading night and day for three days. That hurdle behind him, and now legally qualified, he made his way to the Metropolis, where a few years of hard work and a shrewd eye to opportunity made him the possessor of two separate and distinct general practices of the pre-panel type. But this was only a means to an end. Realizing that to succeed as a surgeon in London the English Fellowship is necessary, he set to work to take that diploma, and at the age of 41 succeeded in doing so without in the meantime having to curtail his private practice.

Disappointed in his ambition to become a urologist, he turned to oto-laryngology, and, with the help and guidance of Dr. (now Sir James) Dundas-Grant and others of the staff of the "Central," ultimately found there an opportunity for his surgical enthusiasm and a rostrum for his outstanding powers as a teacher. About this time the "Central" and the Post-Graduate College, or Polyclinic, in Gower Street had become the medical Mecca for flocks of American and other students seeking the mastery of a difficult specialty, and Stuart-Low was one of the principal attractions at both institutions. His chosen subject was rhinology, and he handled his theme with point, vigour, and a refreshing absence of the conventional.

Fertile in original ideas Stuart-Low undoubtedly was, although unfortunately it was an originality impatient of the slow, unhurrying march of science. So that, while we may hazard the prophecy that some at least of his novelties will be heard of in a later generation, we can only record now that during his lifetime they aroused little or no interest. As an instance we may cite his operation of submucous turbinectomy, subsequently described, without acknowledgement, by a German authority. But beneath a surface hardened by long conflict with a not too friendly world, Stuart-Low possessed a kindly, indeed a soft, heart, which led him now and then into a sort of shamefaced generosity. Once, having heard or read that cancer never appears in myxoedematous people, he proceeded to try the effect of complete thyroidectomy in otherwise inoperable cancer of the deep pharynx. To our great surprise the operation was followed by improvement and an increase in the patients' weight. But the riddle was solved when his house-surgeon divulged that his patients, poor and miserably nourished old men, were being lavishly fed for the first time for years—at their surgeon's expense.

Thus Stuart-Low's character partakes of the picturesque and his career of the adventurous. He fought his way up against that indifference in men and circumstance that looks so like hostility by means of sheer hard work and indomitable courage, sustained by a burly self-confidence—qualities, be it said, which will bring a man to the fore in any walk in life. In which respect his achievement is an inspiration for ambitious youth even in these modern and more difficult days. No summary of his life and doings would be complete without an allusion to the lady he married some time after his arrival in London, to whose wise counsel and encouragement he owed so much. We offer her our most sincere and respectful sympathy.

Dr. WILLIAM MACDONALD, who died at Grassendale, Liverpool, after a long illness, at the age of 66, was a native of Inverness. He studied medicine at the University of Aberdeen and in Edinburgh, graduating M.B., C.M.Aberd. in 1899, and taking the Scottish triple qualification five years later. After a period as house-surgeon and house-physician at the Royal Albert Edward Infirmary, Wigan, he settled in Liverpool over thirty-five years ago. He was a keen Territorial, having joined the Force in 1908. He rose to the rank of lieutenant-colonel, and during the war had command of the 3/2 West Lancs Field Ambulance. A former colleague writes: Macdonald was a most human commanding officer, and yet got the maximum amount of work from his officers and men. His attitude towards the personnel was that of a father towards his family. After the war he was a regular attendant at the ex-service men's reunion, and his genial presence was always a joy to such a gathering. He was much loved by a large circle of patients and friends. "Willie Mac," as he was affectionately called by his friends, was a most generous gentleman and the soul of honour. He had a wonderful capacity for making friends. In the passing of Lieut.-Colonel William Macdonald old members of the 2nd West Lancs Field Ambulance will feel that they have lost a real friend. Those who served with him will always remember with gratitude his kindliness and the human touch with which he tempered his military administration. He leaves a widow and two sons.

The Rev. HORACE BAGSTER WILSON, who died at Muker-in-Swaledale Vicarage, Yorkshire, on June 3rd, at the age of 72, had practised medicine until his ordination ten years ago. His mother was a daughter of Mr. Bagster, the famous publisher of Bibles, and he was educated in Quaker schools. After a short commercial

career he intended to take up missionary work, but was prevented from this by health reasons. He then turned his attention to medicine, studying in London, Bristol, and Birmingham, and obtaining the diplomas M.R.C.S., L.R.C.P. in 1895. He held the appointment of house-surgeon to the Birmingham and Midland Counties Throat Hospital for a year, after which he found an opening for his earlier enthusiasm in the Birmingham Medical Mission, of which he was physician and superintendent from 1896 until 1925. In the war he held the commission of major in the R.A.M.C., and was registrar at the Tidworth and Hollymoor military hospitals, being subsequently awarded the O.B.E. He was for some time a medical officer under the Ministry of Pensions. In 1925 he was ordained in the diocese of Birmingham, where he held two curacies before being appointed in 1931 to the vicarage of Muker. Dr. Wilson had devoted himself especially to diseases of children and social conditions. His publications include studies in slum conditions (1911), a programme for the improvement of the slum child (1912), articles on hospital reform and the registration of medical records (1911 to 1914), and books on the Poor Law crisis and child life in cities. A man of versatile outlook, a sincere and practical philanthropist, his closing years in Swaledale were very happy. He had been a member of the British Medical Association since 1901. His only son, Dr. D. B. Wilson, is a medical officer of the East African Medical Service in Tanganyika.

The little town of Stone (Staffs) has sustained a great loss through the sudden death, on May 24th, of Dr. WALLACE H. C. CANDLER, after nearly forty-five years' devoted work in it. He was a Bart's man, taking his M.R.C.S. and L.R.C.P. in 1886, when he became a member of the British Medical Association. He was house-physician to the Victoria Park Chest Hospital (London) and to the Shadwell—now Princess Elizabeth—Hospital for Children (which latter always remained most dear to his heart), and later medical officer of the York Dispensary for several years. In Stone he will be held in loving remembrance by rich and poor alike, not only as one of the best type of old-school general practitioner, who loved his patients and did untiring work on their behalf, and as friend and adviser to all who asked, but also for his unostentatious steady work in the town in various capacities. He was chairman of the Boy Scouts Committee, of the War Savings Committee, and for over thirty years of the Stone Conservative Association. He was also for many years churchwarden, and one of the founders of the St. Michael's Lodge of Freemasons, and in all these activities his unfailing courtesy, his breadth of view, and simple loyalty to each particular cause did much to minimize friction and lessen the difficulties that inevitably arise in public work. Through all this strenuous service Dr. Candler's spirit remained so youthful that it is hard to realize he had passed his allotted span of threescore years and ten.

The following well-known foreign medical men have recently died: Dr. GUSTAV GÜNTHER, professor of pharmacology and toxicology at Vienna; Dr. A. ZIMMERN, director of the municipal institute of electrotherapy of Paris, member of the Académie de Médecine, and officer of the Legion of Honour; Dr. HAROLD NAUCKOFF, senior physician to the King of Sweden, aged 54; Professor FOWINSKI, a Warsaw dermatologist; Geh. Med.-Rat. Professor Dr. ALFRED GOLDSCHEIDER of Berlin, formerly director of the Third University Medical Clinic of Berlin and president of the Berlin Medical Society, aged 77; Dr. E. POULSSON, emeritus professor of pharmacology and director of the State Vitamin Institute at Oslo, aged 77; Professor CARL STERN, formerly director of the skin clinic at Düsseldorf, aged 70; Dr. F. J. P. DOELEMAN, president of the Rotterdam Medical Society, aged 53; and Dr. JOSEPH THOMAS, co-founder of the Société Internationale de Recherches Contre la Tuberculose et le Cancer and of the journal *Néoplasmes*.

Medico-Legal

THE PATIENT AS TESTATOR

(*Continued from page 1151*)

UNDUE INFLUENCE

As the first principle of the law concerning wills is that the testamentary document shall be in truth as well as in name the "will" of the deceased, it follows that if a will is made in consequence of fraud or force it is not valid. If, for example, a friend of the testator falsely slanders one of the testator's sons and thereby induces the testator to cut him out of his will, the fact may invalidate the will. Actual force is probably not often used to procure the making of a will or modify its provisions, but threats will taint a will quite as strongly as force if the fear they induce is just—that is, when the will would have been different if they had not been made. A person who attacks the will on the ground of fraud or force must prove that this influenced its provisions, and the decision is always one for the discretion of the judge. If fraud is alleged, he must compare the deceit with the capacity or understanding of the person deceived to decide whether the fraud is of such a kind as to overthrow the will. If the charge is of threat, he will consider the quality of the threats, the power and disposition of the threatening party, and the sex, age, courage—or the reverse—and other characteristics of the threatened.

Force and fraud are both fairly definite issues, but a will is also invalid if anyone has used such dominance or influence over the testator as to prevent him from exercising his own discretion in the making of his will. This is called "undue influence," and is not so easy a matter to prove. The expression is a little misleading, for the word "influence" is not used in quite the ordinary colloquial sense. Undue influence is by no means the same as bad influence. If a young man becomes infatuated with a prostitute and makes a will leaving all his property to her, the will cannot be upset merely on the ground that she exercised unbounded and harmful influence over him. A man may come under the influence of evil companions and leave them property which should have gone to his wife and children; such a will, though shocking, will be upheld. Influence is not "undue" when its result is that the testator comes to the conclusion that he *will* make a will in a particular person's favour, because in such a case, however deplorable the factors in his decision may be, he has been persuaded really and truly to intend to leave his property to the undeserving beneficiaries. He is acting of his own free will, albeit for bad reasons. The essence of undue influence, as that term is understood in the Probate Court, is coercion. When the testator does not desire to make the will in the way that he has made it, and his will is in some way coerced or overborne, he is said to make it under undue influence.

Sir James Hannen pointed out in his judgement in Wingrove *v.* Wingrove (1886), which is still one of the best statements of the law on this subject, that undue influence in this sense may vary from actual confinement or violence to such refinements of moral torture as the systematic pestering of a sick and helpless man until he will do anything for the sake of peace. In the words of another judge, undue influence is not the influence of affection and attachment; it is certainly not the mere desire to gratify the wishes of another—for that would be strong evidence that the testator was exercising his own real volition. The opponents of the will must prove that it was obtained by coercion so that the testamentary act was done merely for the sake of peace, the motive being tantamount to force and fear. No amount of persuasion or advice, whether founded on feelings of regard or religious sentiment, will avail to set aside a will so long as the free volition of the testator to accept or reject that advice was not invaded. On the other hand, pressure of any kind, whether acting on the fears or the hopes, if so

exerted as to overbear the volition without convincing the judgement, is a species of restraint under which no valid will can be made. Examples are importunity or threats which the testator has not the courage to resist; or moral command asserted and yielded to for the sake of escaping from "distress of mind or social discomfort."

Moreover, the undue influence must be exercised in relation to the will itself. It is not enough to show that a particular person was able to overbear the will of the testator; the opponent of the will must prove that in that particular case the power was actually exercised and the will was actually produced by its exercise. If, however, at the time he made the will the testator was acting under the undue control of certain persons in other important matters, the law may infer that some undue influence tainted the will.

CIRCUMSTANCES AROUSING THE COURT'S SUSPICION

There is another large class of cases in which a will may be upset without actual proof of undue influence. Where the will has been prepared in circumstances which excite the suspicion of the court it becomes the duty of those who are asking for it to be admitted to probate to satisfy the court that the testator really knew and approved the contents of the will. If they cannot do this, then although they may not actually be proved guilty of fraud or undue influence, the court may pronounce against the will. When, for example, the will was prepared by, or on the instructions of, a person who stands to receive a large sum of money under it, the court will be very much on its guard and the legatee will have to convince it beyond doubt that the testator really meant what the will says he did.

In Tyrell *v.* Painton (1893) an old lady had made two previous wills in favour of P., a friend and trustee of hers. For some reason which may or may not have been a good one, she took a dislike to him and gave her solicitor, who had prepared the former wills, instructions to make another disinheriting him. She executed it that day, and it was witnessed by the vicar, her doctor, and the solicitor. Two days later a son of P. brought her the draft of another will, in his handwriting, purporting to leave nearly the whole of her property to P. and appointing another of his sons sole executor. She signed this document, and it was witnessed by the son who had brought it and by a young man, a friend of his. No one else was present at the time; the son took away the will and no one knew of its existence until she died a fortnight later. At the trial the son swore that she had sent for him, said she was sorry she had turned against her old trustee P., and dictated the new will. He and the other attesting witness swore that she thoroughly understood and approved of its contents. Other witnesses, however, proved that she had gone on expressing hostility to P. and satisfaction at having cut him out of her will, and that she had complained that the son had brought a strange young man to her room and that she had asked her doctor to protect her from being disturbed again. Her doctor said that on the date of the new will she was in an exhausted and drowsy condition. The Court of Appeal found that the circumstances were such as to cause the gravest suspicion, and that the doubt was not removed by the evidence of the son and the young man. It therefore rejected the later will set up by P.

Sometimes, when a testator cannot speak, the only way of ascertaining his intentions is to put leading questions to him. In such a case the court will be more than usual upon its guard against importunity, and will require more convincing proof than usual of capacity, spontaneity, and volition. When the testator, after making a succession of wills in favour of certain people, suddenly cuts them out and makes a will in favour of other people, the court will require an explanation, especially if the person in whose favour the new will is made possessed great influence and authority, and originated and conducted the whole transaction.

In Marsh v. Tyrell (1828) an elderly lady had consistently made wills settling the bulk of her property on three old friends and business agents, and leaving several small legacies to other persons. Shortly before her death she was enfeebled by paralysis. After her death her husband, whom she had married at the age of over 50, came forward with a will leaving everything to him except a few small sums to servants. The court inquired closely into the circumstances in which the will was executed, and the husband emerged from the inquiry very badly indeed. He had taken sole charge of her affairs, had prevented her from seeing anyone outside the household, and was the only person who knew that the later will had been executed. It was refused probate.

The court will be suspicious whenever the person who prepared the will benefits under it, and also when the testator has given no instructions for the will; or when the people who benefit by it are shown to have assumed authority over him when he was weak and ill, or kept his relations and friends away from him.

LEGACIES TO DOCTORS

Some writers, in dealing with the position of a doctor to whom a patient leaves property in his will, have seemed to suggest that he comes under great suspicion in the eyes of the court. This is by no means always true. The fact is that he will not come under suspicion at all unless there seems to be some positively good reason for it. There is a fundamental difference between a legacy in a patient's will and a gift from a patient who is still alive. The courts of equity, which in early days overrode the courts of common law when a transaction was "against good conscience," have always interfered to protect people who, through inexperience, helplessness, or undue susceptibility to influence, have been induced to give property to others who have been in a position to exert special influence over them. A parent is in such a position with regard to a child; a man with regard to his wife; and a similar relationship exists between a doctor and his patient, a solicitor and his client, a confessor and his penitent, a guardian and his ward. If the weaker makes a contract, or gives property, to the stronger and afterwards regrets it, he may ask the court to set the transaction aside. The court will set it aside unless the stronger party can prove that it was fairly conducted as between strangers. To do this he must show that the weaker party was not unduly impressed by his natural influence, or overreached by his greater experience. The question the court usually asks is whether the weaker party had competent independent advice.

That is the position when a doctor receives a gift from a living patient and the patient (or his representative, if he is incapacitated through insanity or youth) afterwards wishes to recall it. The law is quite different when the gift is made by will, for then the presumption is all in favour of the doctor. If every legatee who had been in a position to influence the testator had to show under what influence the legacy was made, and what professional or other advice the testator had, it is possible that most legatees would never be able to qualify for their legacies at all. So a doctor whose patient is grateful enough to suggest leaving him property need not fear awkward legal consequences unless the circumstances are such as may arouse the suspicion of the court. The best way to obviate all possibility of suspicion is to induce the testator to make his intention known to one or two independent persons, preferably including his solicitor. Even if the person opposing the legacy proves that the testator did not have independent advice, the legacy will still be good in the absence of definite suspicion. Nevertheless, as the doctor will not wish to have it suggested against him, however groundlessly, that he influenced a dying patient to get some of his estate, he will do well to see that the testator had at least the opportunity of taking independent advice.

KNOWLEDGE AND APPROVAL

Anyone who asks the court to pronounce for a will must satisfy the court that the testator knew and approved of its contents at the time when he signed it. In the ordinary way the court will be satisfied if the person putting forward the will proves that the testator had capacity, and that the will was properly executed. If, however, there are circumstances which arouse the suspicion and vigilance of the court—if, for example, the person who wrote and prepared the will stands to benefit considerably by it—or the capacity of the testator at the time of execution is doubtful, the party propounding

the will must give positive proof that the testator really knew and approved of its contents. The most satisfactory way of proving this is to show that the deceased gave instructions for the will, or that he read it over, or that it was read over to him, but the court may be satisfied with less direct proof. It is not necessary to prove that the testator actually gave instructions for the will, provided that the court can be satisfied that the testator completely understood, adopted, and sanctioned the arrangements set out in a will which someone else had made out for him.

Many disputes arise when a testator, otherwise of sound mind, executes a will in a state of mortal illness in which he is not fully conscious. In this case the law does not always require the testator to have remembered or understood the will in detail at the time he actually signed it. If he has given instructions to a solicitor to make a will, and the solicitor prepared it in accordance with those instructions, the court has only to be satisfied that the testator thought in the following terms: "I gave my solicitor instructions to prepare a will making a certain disposition of my property; I have no doubt that he has given effect to my intention, and I accept the document which is put before me as carrying it out."

(To be concluded)

EMPYEMA TUBE LEFT IN: ACTION FAILS

In March, 1928, Mr. J. W. James, a dairyman of Folkestone, consulted Mr. W. W. Linington, a surgeon of that town, for symptoms which proved to be those of pneumonia and pleurisy, and on May 3rd Mr. Linington, at the Royal Victoria Hospital, Folkestone, resected a piece of rib and inserted a U-shaped drainage tube. The patient was eventually discharged on May 17th. On June 15th he returned to the surgeon complaining of pain, and the wound actually broke down in the consulting room and discharged much pus. Mr. Linington inserted a drainage tube which he said was a foot long and the patient said was six inches long. Next day at out-patients Mr. James was attended by a sister and a nurse, and he was subsequently attended for some weeks either by the sister or by a house-surgeon. By October the wound had healed, and he paid the hospital a lump sum agreed with Mr. Linington. He had recurring ill-health until, in 1933, he was advised to enter the Hospital for Consumption and Diseases of the Chest, Brompton. At operation, Mr. Price Thomas found a length of rubber tubing 4½ in. long with cut ends, very much perished, in the neighbourhood of the original wound. Mr. James sued the governing body of the Royal Victoria Hospital, Folkestone (some thirty persons), and also Mr. Linington.

In the course of the action, which was heard before Mr. Justice Swift towards the end of May and which lasted several days, the learned judge dismissed the hospital governors from the suit on the ground that, whether this piece of tube was left in through the negligence of Mr. Linington or of any of the nursing staff of the hospital, the governing body could not be held responsible in law. He said that Lord Justice Greer, in the recent case of Marshall v. Lindsey County Council,[1] had exactly stated the legal position when he said that the Court of Appeal was bound by the principle in Evans *v.* The Liverpool Corporation (1906), since this had been approved by the Court of Appeal in Hillyer *v.* St. Bartholomew's Hospital (1909). The position is that a person or corporation who appoints an independent expert, such as a medical man, to do a service which he could not do himself and is not competent to control, is only responsible for selecting a competent expert, and any isolated act of negligence by that expert cannot be visited on him. Mr. Justice Swift said that he was much attracted by the reasoning of Lord Alness in Lavelle *v.* Glasgow Royal Infirmary (1932).[2] In that case a patient who had been burnt with ultra-violet rays sued a hospital, and the Court of Session held that, even if the nurse had been negligent, the hospital governors would not have been responsible for her negligence, as she was performing a professional service. Lord Alness, then Lord Justice Clerk, delivered a minority judgement in which he held strongly that hospitals should be considered liable. If, said Mr. Justice Swift, he were deciding the matter for the first time in any court, he might possibly follow this opinion rather than that expressed in Hillyer's case. Nevertheless, in his opinion, the committee of the hospital contracted with the patient to provide an appropriate building with a sufficient domestic staff whom it would control for the purpose of running the hospital; and it also contracted to employ competent doctors and nurses. It did not undertake in any way to be responsible for the way in which the doctors or nurses performed their duties. These duties were the duties of skilled people to be carried out by skilled people, and their actions could not be controlled in any way by the members of the committee, who did not pretend that they had the knowledge or the ability to perform the duties themselves. This being so, the committee was not responsible for any negligence of which doctors or nurses might be guilty.

Mr. James's counsel, proceeding against Mr. Linington, tried to establish that Mr. Linington had inserted a piece of tubing which was so brittle and perished that next day, when the sister in charge of out-patients tried to extract it, she broke off a piece and left the rest in the wound. The special jury, however, did not accept this view, and, in the absence of any other evidence that any negligence of Mr. Linington was responsible for the tube being left in, found a verdict for the defendant. The manner in which the mishap occurred therefore remains a mystery, but one suggestion of the learned judge seems, with respect, to contain a possible explanation: that some person unknown, instead of properly removing the tube, sterilizing it, shortening it, and replacing it with the anchoring safety-pin, merely cut off the outer ends and left it unanchored. His lordship did not have occasion to speak of the responsibility or otherwise of a member of the consulting staff for the actions of nurses who attend to his patients in his absence, but these circumstances seem to be fairly well covered by the decision in Perionowsky *v.* Freeman (1866), in which it was held that as the surgeon had not been present and in a position to control the actions of the nurses, he could not be held responsible for them. The case is interesting because it establishes, subject to appeal, that a paying patient is in the same position as a non-paying patient as far as the liability of the hospital is concerned.

[1] *British Medical Journal*, March 2nd, 1935, p. 449.
[2] Ibid., 1933, i, 767.

PSYCHOLOGICAL TREATMENT FOR PRISONERS

What is perhaps the first instance of a metropolitan magistrate suggesting the treatment of a prisoner by medical psychology instead of punishment by fine or imprisonment occurred at the Marylebone Police Court on Saturday, June 8th. Before Mr. Claud Mullins was a salesman, aged 35, who was found guilty, after an exhaustive inquiry, of persistently importuning male persons in Belsize Road, Hampstead. He was described by his counsel, Mr. St. John Hutchinson, as a man of excellent character, who had been wounded and gassed in the war, and was keeping company with a young lady. He denied the charge, and declared that if convicted of it his career would be blasted.

Mr. Claud Mullins, having found the charge proved, said that in common with the legal and lay minds of the country he was completely mystified by this class of offence. He considered that any form of punishment should only be imposed as a last resource. He preferred as an alternative to persuade the defendant, if he could, to rid himself of these temptations by going to the Institute of Medical Psychology and enlisting the help of the higher medico-psychologists who worked there. This institute, of which the Duke of Kent was the president, was earning for itself a very fine name for the treatment of mental disorders. It would be useless to enlist such help, however, unless the accused admitted that there was a weakness to be got over. He therefore suggested that the accused should consult with his counsel and that counsel should communicate with him (the magistrate) in private. This was done, and later in the day the magistrate mentioned that the accused had consented to go to the institute, and remanded him on bail to June 24th, at the South-Western Police Court, when Mr. Boswell, the court missionary, would report the result of the experiment.

Medical Notes in Parliament

[FROM OUR PARLIAMENTARY CORRESPONDENT]

The King has approved the appointment of Mr. Stanley Baldwin as Prime Minister in place of Mr. Ramsay MacDonald, who becomes Lord President of the Council. Sir Kingsley Wood is appointed Minister of Health in the stead of Sir Hilton Young, who has left the Government and received a peerage. Sir Kingsley was Parliamentary Private Secretary to the Minister of Health in 1919–22, and Parliamentary Secretary to the Ministry in 1924–9. Dr. Walter Elliot continues to be Minister of Agriculture and Fisheries.

The University of Durham Bill, "To make further provision in respect to the University of Durham and its constituent colleges," was presented in the House of Lords by Lord Halifax on June 5th, and was read a first time. Its second reading was set down for June 17th.

The Housing Bill, which has passed the House of Commons, was read a second time by the House of Lords on June 5th and the committee stage appointed for June 24th.

The Voluntary Hospitals (Paying Patients) Bill was read a third time by the House of Lords on June 5th and sent to the Commons.

The Government of India Bill received a third reading in the House of Commons on June 5th.

A petition from London and other places praying for the prohibition of vivisection was presented in the House of Commons on June 4th.

The report of the Poisons Board on the Poisons List and the Draft Poisons Rules, which had been presented to both Houses on May 31st, was issued on June 6th.

Mr. Ramsay MacDonald told Dr. Addison, on June 6th, that he could not promise facilities this session for passing a Bill embodying agreed proposals on the superannuation of local government employees.

The Housing (Scotland) Bill was reported to the House of Commons with amendments from the Standing Committee on Scottish Bills on May 30th.

The Restriction of Ribbon Development Bill, which had passed the House of Lords, was read a first time by the House of Commons on June 6th.

On June 6th the House of Commons nominated seven Members to join with seven Peers in a Select Joint Committee on the better conservation and organization of water supplies and resources in England and Wales.

The *London Gazette* of June 11th published an Order in Council made on June 6th and entitled the Pharmacy and Poisons Act, 1933 (Date of Commencement) Order, 1935. By this, January 1st, 1936, is made the appointed day for Sections 7 to 14 of the Pharmacy and Poisons Act, 1933, for all purposes and for the provisions of Subsection 4 of Section 31 of the Act and of the Third Schedule of the Act, in so far as they effect the repeal of Section 26 of the Pharmacy Act, 1868. May 1st, 1936, is made the appointed day for all purposes for all provisions of the Act not previously brought into operation. (Certain provisions of the Act were brought into operation by Order No. 1, 1933.)

Parliament stands adjourned for Whitsuntide. When the House of Commons reassembles on June 17th the Education Estimates will be discussed.

Durham University Commissioners

The University of Durham Bill, introduced in the House of Lords by Lord Halifax, as President of the Board of Education, is drafted to carry out the report of the Royal Commission which was appointed on March 16th, 1934, to inquire into the organization and work of the University of Durham. The Bill proposes to establish a body styled "the University of Durham Commissioners," consisting in the first instance of the following persons: Rev. F. H. Dudden (chairman); Countess Grey; Sir (Wilberforce) Ross Barker; Professor J. H. Priestley; Mr. Charles Williams (of Monkseaton); Professor G. R. Murray; Dr. T. F. Sibly; and Dr. Alexander Wood.

The powers of the Commissioners continue till the end of 1936, and may be extended by Order in Council, but not beyond the end of 1937. The Bill enjoins the Commissioners to make statutes for the University, for its Durham and Newcastle divisions, and for the colleges of the Newcastle Division in general accordance with the recommendations in the report of the recent Royal Commission. So far as may be necessary for giving effect to these recommendations, the Commissioners may make statutes for any college of the Durham division, and in particular they may make statutes "dissolving the two corporations known as the University of Durham College of Medicine and Armstrong College, Newcastle-upon-Tyne, in the University of Durham, and constituting one corporation in lieu thereof, and transferring to the last-mentioned corporation the property and liabilities (including any property and liabilities vested or arising under any trust) of the dissolved corporations, and providing for any matter incidental to or consequential on the dissolution or constitution of those corporations or the said transfer." Before making any statute the Commissioners shall consider representations by, or on behalf of, persons directly affected, and take such evidence as they think necessary. No statute shall take effect until approved by Order in Council, after which it will override any Act of Parliament, charter, or deed. Similar powers will be enjoyed by the University after the Commissioners have ceased to function, and the Commissioners before leaving office are to make statutes empowering the University to alter or supplement provisions of statutes made by the Commissioners or by any other body.

The Nutrition Committee

Dr. ADDISON, on June 6th, asked Sir Hilton Young whether he would publish the reports on nutrition which had led to the appointment of the special committee to report on the nutrition of the people. Sir HILTON YOUNG replied that Dr. Addison was under a misapprehension. The committee to which he referred was a standing advisory committee to assist the Minister of Health and the Secretary for Scotland with advice on problems of nutrition.[1] It took the place of a smaller and purely technical advisory committee which was appointed in 1931 by Mr. Arthur Greenwood to perform the same service for the Ministry of Health alone.

Health Insurance of Unemployed

The National Health Insurance and Contributory Pensions Bill was read a second time by the House of Commons on June 6th on the motion of Sir Hilton Young, and was sent to committee of the whole House. Sir HILTON said 18,000,000 persons were affected by national health insurance. The great depression had adversely affected the basis of that scheme, which in 1932 had to be fortified and rebased without help from the Exchequer. Among other changes then made the benefits to women were reduced to an amount which actuarially the scheme was capable of maintaining. Subsequent experience of women's sickness had justified that reduction, and no further change was now proposed in women's benefits. The pension rights of all the unemployed were continued until January 1st, 1936. Since 1932 the live register of unemployed had diminished by 750,000 persons, and the contributions to health insurance had increased by £2,375,000 a year. The Ministry of Health, therefore, found itself able to continue in national health insurance those who fell into unemployment from year to year without the limitations adopted in 1932. To all was secured one and three-quarter years on an average of free insurance on the termination of insurable employment. Those unable to get work thereafter and to pay contributions would continue in insurance from year to year indefinitely if unemployment was the cause of the contributions being unpaid. The benefits secured were not cash benefits, but medical and additional treatment

[1] *British Medical Journal*, June 8th, p. 1187.

benefits, including institutional benefits of a medical sort, and pension benefits. Maternity benefit, being a cash one, was not secured. Some persons already, under the Act of 1932, had their health insurance benefits discontinued, and approximately 200,000 would pass out of insurance for all purposes on January 1st, 1936, unless Parliament helped them. The Bill enabled transitory regulations to be made which would prevent all those who were going out of insurance from doing so, and bring back all those who had gone out owing to unemployment. The condition for continuance in insurance would be that there should be ten years of continuous insurance when work ceased. Owing to successive Acts for continuance in insurance only 9 per cent. of the 200,000 would fail to qualify under the ten years' condition, and these, for the most part, would be young people with good prospects of coming back into insurance. All arrears of contributions due to unemployment would be excused. A contribution towards the cost of £700,000 would be made by approved societies, and £750,000 would be taken from the Navy, Army, and Air Force Fund, established to provide insurance for men who could not secure entry to approved societies on leaving the Services. The benefits under that fund would still be paid in full.

Mr. LLEWELLYN JONES feared that if the Minister called for this contribution of £700,000 it would be difficult, if not impossible, for approved societies to give dental benefits after the next valuation. Lady ASTOR begged the Government to grant maternity benefit to the wives of unemployed men who had got out of insurance. The plea was supported by several later speakers, including Sir FRANCIS FREMANTLE, who asked whether the Minister of Health would bring in during the autumn a Maternity Bill, and in it make maternity provision for all insured people. Sir Francis further remarked that now the nation was accustomed to the panel doctor and public assistance system, some arrangement ought to be made which applied equally to insured and non-insured persons as regards medical benefit and treatment. It was a hardship if the insured person had to leave the doctor of his choice, go to the public assistance doctor, and later go back to his own doctor.

Dr. O'DONOVAN said that references in the Bill and the debate to the care of the people's health had been slight. He wished to refer to the approved societies. These were trusted with much of the financial help of the sick, but the societies husbanded their millions with a care which had the approval of the Treasury but gravely disquieted doctors. The ingenuity of the skilled advisers of approved societies could see many outlets for unwise disbursement of public money through medical certificates written in good faith. While these difficulties were cleared up by leisurely correspondence the sick often waited weeks for financial aid which was pressingly needed. When sickness became a matter of litigation, with approved societies and insurance companies opposed, the needy sick might wait months for any assistance. It was occasionally possible for the two sides to arrange who should pay in the interim, but Dr. O'Donovan's experience showed that, while the House of Commons wished to help the sick instantly, the skilled professional advisers of approved societies put a barrier between the sick poor man and the money he should have. The procedure which the Bill proposed would depend on skilled medical examination, but the doctors who had first charge on the money involved were the most overworked of all professional men in the United Kingdom. Their work lasted from 8.30 a.m. to 9.30 p.m., with night calls afterwards, and throughout the day's work they had to give minute attention to certification and the observation of complex regulations, which were showered on them at the rate of a full volume yearly. All the actuarial calculations of the Ministry would be nugatory unless the actuaries could depend on consistent and accurate medical certification. That this Bill depended so upon the actuary justified the claim that medical certification was accurate and reliable. Additional benefits had been advocated, in particular maternal and dental. Before these specialist advice should be made available through the Ministry of Health to panel doctors. It was not proper that this service should depend for its ultimate efficiency on the free advice of consultants.

Mr. RHYS DAVIES remarked that of the fund of £1,500,000 to be established for helping unemployed to secure pension rights, medical benefit, and—in some cases—cash benefit, £130,000 would go to the medical profession. There never was a stronger trade union than that of the medical profession, except that of the legal profession. Approved societies were not satisfied with the treatment of a person who surrendered a medical certificate for three days, benefit only being due on the fourth day. A man might have a number of short illnesses in succession and receive no benefit. Mr. Rhys Davies urged that the three days should be deemed a waiting period, and the man should receive benefit on the first day of the second illness.

Mr. SHAKESPEARE replied for the Government, and the Bill, as stated above, was read a second time without a division.

Birth Rate and Social Services

Dr. O'DONOVAN asked, on June 6th, what was the personnel and organization within the Ministry of Health charged with the duty to watch and advise upon the effects of the trend of the birth rate upon housing and other social services in being or under discussion. Sir HILTON YOUNG, in reply, said the Registrar-General, whose Department was within his ministerial responsibility, had under continual study the nature and direction of all the elements of population movement, the handling of which called for general statistical experience prior to their application to particular administrative problems. The Registrar-General was in frequent consultation with the principal officers of the Ministry of Health with a view to the development of useful lines of inquiry and the satisfaction of particular needs.

High Accident Rate in Notts Coalfield

Mr. CHARLES BROWN, on June 6th, asked whether the attention of the Secretary of Mines had been called to the latest annual report of the inspector of mines in the North Midland Division, which expressed grave concern about the fatal and non-fatal accident rate in the Notts coalfield. A similar question was put by Mr. SEYMOUR COCKS. Mr. ERNEST BROWN, in reply, said the report of the divisional inspector dealt with accidents from falls of ground in the North Midland Division as a whole. In this division a high accident rate from falls of ground had persisted for several years. The associated problems, which were numerous and difficult, had been studied by the Government inspectors and by a research committee in association with the Safety in Mines Research Board, and reports on these studies had been published. Mr. Brown did not consider it necessary to institute a further special inquiry. He was satisfied that the high accident rate from falls was not the result of failure to observe the statutory requirements on the subject.

Primary Vaccination

Mr. GROVES asked the Minister of Health on what grounds, while exemption from risks attendant upon vaccination might be secured in the case of children of school age and adolescents, no such exemption was allowed in the case of infants. Sir HILTON YOUNG, on June 6th, said he assumed Mr. Groves had in mind advice given by the Ministry of Health that in the present state of knowledge, and so long as the small-pox prevalent in this country retained its mild character, it was not generally expedient to press for the vaccination of children of school age or adolescents who had not previously been vaccinated, unless they had been in personal contact with a case of small-pox or directly exposed to small-pox infection. This advice was based on the findings of the Committee on Vaccination, whose report was published in 1928, and expressed the view that early infancy remained the time of choice for primary vaccination.

Streptococcus Strains in Scarlet Fever Outbreaks.—Mr. GROVES asked what streptococcus was found in the throats of the two bottlers at Denham to whom the Denham scarlet fever outbreak was at first attributed. Sir HILTON YOUNG replied, on June 6th, that one of the persons referred to was a temporary carrier of Type I streptococcus. In the other case the streptococcus was of a strain unconnected with the outbreak. The outbreak was not at any time attributed to these two persons.

Operations for Sterilization.—Mr. POTTER asked if the local health authority in the London area maintained any record of operations performed for the sterilization of female patients in hospitals subject to his inspection. Sir HILTON YOUNG answered, on June 6th, that records of all such operations were kept at the hospitals concerned.

Deaf and Dumb: No Legislation Proposed.—Sir HILTON YOUNG, on June 6th, told Dr. Addison that he was not prepared to introduce legislation giving to deaf and dumb persons similar benefits, as well as facilities for training, as are afforded to the blind under the Blind Persons Act. He was not satisfied there was need for such legislation.

Ophthalmic Benefit Report.—The final report of the Ophthalmic Benefit Joint Committee is still under consideration by the Minister of Health. Whether legislation will follow cannot yet be said.

Infant Mortality Rate in Kensington.—The deaths registered in 1934 of infants under 1 year of age represented a rate per 1,000 live births of 93 in Kensington Metropolitan Borough and 62 in Poplar Metropolitan Borough.

Notes in Brief

The Regional Dental Staff of the Ministry of Health consists of fourteen officers, one of whom does not possess registrable qualifications.

An effort is being made to issue by the end of June the annual report of the Chief Inspector of Factories and Workshops.

An officer of the Ministry of Agriculture will visit Pembrokeshire and Carmarthenshire to investigate the use in that area of cyanide fumigation for keeping down rabbits.

Universities and Colleges

UNIVERSITY OF OXFORD

At a congregation held on June 8th the following medical degrees were conferred:

D.M.—C. R. Greene.
B.M.—J. E. G. Pearson.

UNIVERSITY OF CAMBRIDGE

D. H. Barron, Ph.D.Yale, has been appointed University Demonstrator in Anatomy for three years from October 1st, 1935.

Leslie Harris, D.Sc., Ph.D., director of the Medical Research Council's Nutritional Laboratory at Cambridge University, has been approved for the degree of Sc.D. Dr. Harris is known for his work on vitamins and proteins, and for the latter was awarded the Meldola Medal by the Institute of Chemistry in 1924.

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—*†J. R. Forbes, *†‡§‖¶G. W. Hayward (University Medal), *¶G. W. Hearn, *‖ E. McLellan, *†¶J. Marshall, E. C. Atkinson, H. H. Atkinson, Barbara Bailey, T. A. Baldwin, E. B. D. Bangay, D. S. D. Barber, G. W. Bender, Brenda G. Billings, G. L. Bohn, A. P. Booth, P. I. Boyd, D. J. T. Brinkworth, I. A. Cathie, R. M. Clarke, C. W. J. Claydon, F. T. Clive, V. H. J. Davies, D. W. A. Degazon, Audrey P. Dence, L. Dexter, P. E. Dipple, Lynette Dowsett, F. C. Durbin, H. A. Eason, E. J. Forgan, J. F. A. Forster, Sheila M. Franklin, Joyce C. Goodchild, I. H. Griffiths, W. E. Hadden, Marjorie K. Hall, P. G. F. Harvey, D. A. B. Hopkin, A. W. J. Houghton, P. W. Houghton, I. B. Jenkins, C. McK. Johnston, A. E. Jones, D. M. Jones, J. G. Jones, W. L. Kerr, A. Lasnick, J. B. H. McArthur, J. J. McCann, A. Moore, Elizabeth C. Morris, R. B. Morton, R. F. Mowll, H. E. Offord, E. D. Page, H. S. Pasmore, G. Phipps, D. S. Piper, A. G. Potts, Marjorie A. Powis, V. B. Reckitt, A. H. W. Roffey, K. B. Rogers, C. G. Roworth, J. G. Sheldon, R. H. D. Short, F. Summers, W. H. Summerskill, Margaret E. Sutherland, B. A. Thomas, D. M. Thomson, W. F. Townsend-Coles, Enid L. Weatherhead, F. H. Weston, C. W. K. Willard. *Group I:* B. Cates, R. Cox, Kathleen Craddock, J. V. Dacie, A. M. Desmond, W. J. M. Evans, H. C. H. Higginson, C. E. W. Hoar, I. Levitt, W. N. Mann, R. L. Moody, Margaret J. Moore, C. J. S. O'Malley, G. H. C. Owens, F. D. Paterson, Millicent I. Rowland, J. K. Samuel, Catherine M. Whitestone, B. L. E. Wong. *Group II:* Mary J. Bartlett, Beatrice A. Blake, C. J. F. Blumenthal, Margaret Brodigan, Annys M. Cusack, Dorothy S. R. Drew, J. A. C. Franklin, L. D. B. Frost, P. Glazer, J. R. Hill, J. H. Lawrence, J. I. Lesh, H. M. McGladdery, Margaret I. McHaffie, J. I. C. Mason, Margaret J. Montrose, W. L. Ogle, E. U. H. Pentreath, J. B. Phillips, Jean Ross, D. J. Sheehan, B. McN. Truscott, C. E. G. Wickham.

* With honours. † Distinguished in medicine. ‡ Distinguished in pathology. § Distinguished in forensic medicine and hygiene. ‖ Distinguished in surgery. ¶ Distinguished in obstetrics and gynaecology.

Semon Lecture

This annual lecture will be delivered on Thursday, October 31st, at 5 p.m., at the Royal Society of Medicine, 1, Wimpole Street. The lecturer, Sir StClair Thomson, has chosen as his subject "The Defences of the Upper Respiratory Tract."

UNIVERSITY OF SHEFFIELD

A medical scholarship, covering the cost of tuition for a degree in the Faculty of Medicine, has been awarded to John Colquhoun of King Edward VII School, Sheffield.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

At the monthly meeting of the Royal Faculty of Physicians and Surgeons of Glasgow, held on June 3rd, the following were admitted Fellows: S. Alstead, R. M. Ebeid, and W. M. Nichols.

Medical News

Sir Frederick Banting, F.R.S., will deliver an informal address on the history of insulin at the British Post-Graduate Medical School, Ducane Road, Hammersmith, W., on Thursday, June 20th, at 2 p.m.

The next monthly clinical meeting for medical practitioners at the Hospital for Epilepsy and Paralysis, Maida Vale, W., will be held on Thursday, June 27th, at 3 p.m., when Dr. W. Russell Brain will demonstrate. Tea will be provided, and it will be a convenience if those intending to be present will send a card to the secretary.

The annual general meeting of the National Birthday Trust Fund (Safer Motherhood Appeal) will be held at 57, Lower Belgrave Street, S.W.1, on Tuesday, June 25th, at 3.30 p.m., with Sir Julien Cahn in the chair. The speakers will be Dame Janet Campbell, M.D., and Mr. L. Carnac Rivett, F.R.C.S.

The new theatre and out-patient block and the new wards of the Wilson Hospital, Mitcham, will be on view at 3.30 p.m. on Saturday, June 22nd, when Dr. Alfred Cox will give a short address.

The annual general meeting of the Royal Society of Tropical Medicine and Hygiene will be held at 26, Portland Place, W., on Thursday, June 20th, at 8.15 p.m., when the new president, Sir Arthur Bagshawe, will be inducted, and the Manson and Chalmers Medals will be presented to Professor J. W. W. Stephens of Liverpool and Professor W. H. Taliaferro of Chicago respectively. Dr. S. Somasundram of Kandy Hospital, Ceylon, will demonstrate temperature charts illustrating the action of atebrin musonate in malaria, and Sir John Megaw will open a discussion on "Typhus Fever in the Tropics."

The annual dinner of the Royal Medico-Psychological Association will be held at Claridges Hotel, W.1, on Wednesday, July 3rd, at 7.45 for 8 o'clock.

The eighth International Congress of Military Medicine and Pharmacy will be held in Brussels from June 27th to July 3rd, on the occasion of the World Exhibition. The following subjects will be discussed: principles of organization and working of the health service in mountain warfare; determination of fitness for various specialties in the land, sea, and air forces; sequels of wounds of the abdomen; unification of methods for analysis of the food and drink of the soldier; bucco-dental service at the front; comparative study of the administrative sanitary services in the land, sea, and air forces.

The fourth Spanish Congress of Urology will be held at Cadiz from June 22nd to 25th, under the presidency of Professor Enrico Bastis.

At a meeting of the Senate of the University of London on June 12th Mr. H. L. Eason, superintendent and senior ophthalmic surgeon, Guy's Hospital, was elected Vice-Chancellor for the year 1935-6, in succession to Professor L. N. G. Filon.

An international congress of physical medicine will be held in Brussels from July 1st to 6th under the presidency of Professor I. Gunzburg.

The Fellowship of Medicine (1, Wimpole Street, W.) announces that an intensive course in diseases of the heart will be given at the National Heart Hospital from June 24th to July 6th. Two "refresher" courses in medicine, surgery, and the specialties will be given at Prince of Wales's General Hospital from June 17th to 29th and from July 1st to 13th. Other forthcoming courses include proctology at St. Mark's Hospital, July 1st to 6th; urology at All Saints' Hospital, July 8th to 27th; medicine and surgery at Southend General Hospital, July 13th and 14th; and dermatology at Blackfriars Skin Hospital, July 15th to 27th. Detailed syllabuses, giving the exact ground covered by the various courses, are available from the Fellowship a few weeks before the courses are due to begin. With the exception of the cardiology course, the courses, clinics, etc., arranged by the Fellowship are open only to members and associates.

As announced in our issue of May 25th (p. 1082), the Anti-Noise League has organized an exhibition at the Science Museum, South Kensington, S.W., from May 31st to June 30th. In addition to the exhibition the League has also arranged a conference at the same place, to be held on Wednesday, Thursday, and Friday, June 26th, 27th, and 28th. The conference opens on June 26th, at 3 p.m., with a reception by Lord and Lady Horder in the exhibition gallery, and will be followed at 4.15 with a discussion, in the lecture room, on "Sound and Noise," to be opened by Dr. G. W. C. Kaye. On June 27th, at 11.30 a.m., Mr. H. G. Strauss will speak on "The Law and Noise," and will be followed, at 3 p.m., by Mr. Hope Bagenal on "Housing and Noise." On the third day, at 11.30 a.m., Sir Henry Richards will deal with "Education and the Noise Problem," and the conference will close with an address, at 3 p.m., by Lord Horder, chairman of the Anti-Noise League, on "Health and Noise."

Viscount Wakefield of Hythe will distribute the prizes at St. Thomas's Hospital Medical School in the Governors' Hall on Tuesday, June 25th, at 3 p.m

Mr. John Masefield, O.M., the Poet Laureate, will distribute the prizes to students of the London Hospital Medical College and Dental School in the Library of the Medical College on Thursday, July 11th, at 3 p.m.

The County Borough of Middlesbrough has issued invitations to the official opening by Sir E. Hilton Young, late Minister of Health, of extensions to the male surgical and male tuberculosis wards at Holgate Municipal Hospital, and the new cubicle isolation block at West Lane Hospital on Saturday, June 22nd.

The issue of the *Wiener klinische Wochenschrift* for May 18th is a Festschrift in honour of the 150th anniversary of its foundation.

D. Appleton-Century Company announce for early publication a new, twelfth (1935), edition of Osler and McCrae's *Principles and Practice of Medicine*, revised throughout by Dr. Thomas McCrae. Through its first eleven editions "Osler" has been reprinted seventy-three times. The price is maintained at 30s.

We have received the first issue, published in April at Buenos Aires, of an Argentine monthly journal named *Publicaciones medicas*. The issue contains original articles by Professor H. Roger of Paris on the internal functions of the lung, cancer of the oesophagus by Dr. Juan I. Zorrilla, and an experimental study on the toxicity and fixation of manganese in the animal organism by Drs. R. E. Carratalá and C. L. Carboneschi.

Professor Cornelius Winkler, emeritus professor of neurology and psychiatry at Utrecht, has recently celebrated his eightieth birthday.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to **The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, W.C.1.**

ORIGINAL ARTICLES and LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone, unless the contrary be stated. Correspondents who wish notice to be taken of their communications should authenticate them with their names, not necessarily for publication.

Authors desiring REPRINTS of their articles published in the *British Medical Journal* must communicate with the Financial Secretary and Business Manager, British Medical Association House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

All communications with reference to ADVERTISEMENTS, as well as orders for copies of the *Journal*, should be addressed to the Financial Secretary and Business Manager.

The **TELEPHONE NUMBER** of the British Medical Association and the *British Medical Journal* is EUSTON 2111 (internal exchange, five lines).

The **TELEGRAPHIC ADDRESSES** are
EDITOR OF THE *BRITISH MEDICAL JOURNAL*, *Aitiology Westcent, London.*
FINANCIAL SECRETARY AND BUSINESS MANAGER (Advertisements, etc.), *Articulate Westcent, London.*
MEDICAL SECRETARY, *Medisecra Westcent, London.*

The address of the Irish Office of the British Medical Association is 18, Kildare Street, Dublin (telegrams: *Bacillus, Dublin*; telephone: 62550 Dublin), and of the Scottish Office, 7, Drumsheugh Gardens, Edinburgh (telegrams: *Associate, Edinburgh*; telephone: 24361 Edinburgh).

QUERIES AND ANSWERS

Vulvo-vaginitis in a Child

"Z.Y.X." writes from Ceylon: Will any reader kindly suggest a means of curing an intractable case of vulvo-vaginitis in a girl of 5 years. The symptoms consist of slight reddening of the mucous membrane and an offensive discharge, which adheres to the skin of the part. There have been remissions in the severity of these signs, and the change to a warmer climate has coincided with an increase in the symptoms.

Elastoplast for Impetigo

Dr. DOUGLAS J. NICOL (Birmingham) writes: In his article on the treatment of warts Dr. McAusland asks if there are other skin conditions that might be treated with elastoplastic bandage. I would like to state that I treat impetigo by the application of elastoplast. As is well known this condition under the old ointment treatment is often very slow in clearing up, and certainly very difficult to keep from spreading. Now with the use of elastoplast I find it clears up in a few days, and there is no need for the child to be absent from school. I apply the elastoplast directly to the sore, and leave it on for as long as it will stay on. Sometimes it requires renewal daily if the sore is near the mouth.

Malaise after Motoring

Dr. G. A. FERRABY writes in answer to Dr. Hawkyard's query (June 1st, p. 1155): For the "sick headache" more or less like migraine, due to travelling by train, or motor, or other vehicles, as well as for sea-sickness, I have found that a five-grain dose of barbitone for an adult, taken at the commencement of a journey and repeated, if necessary, in from four to eight hours, will usually prevent the onset of symptoms. No drowsiness seems ever to have been induced, under conditions of travel, by this dose. One patient who never took an hour's motor ride without vomiting found that with two doses she could travel by road from Nottingham to Torquay and to Blackpool without discomfort. The second dose was taken as soon as pallor and slight discomfort came on.

Income Tax

Legal Expenses

"C. W. F." has become involved in a lawsuit in connexion with repairs to his car. He has lost the case, and has to pay heavy costs. Can they be regarded as allowable for income-tax purposes?

*** In our opinion they are allowable in the same ratio—for example, 90 per cent.—as that applied to running costs and depreciation to cover professional use, but there does not appear to be a decided case on the precise point.

If the Revenue authorities demur our correspondent's answer is that he acted in a reasonable manner, and that the costs incurred are part of the expense of maintaining the car in proper working order.

Tax Repayable

"CHANNEL CROSSING" is married and has an "unearned income" of £600 for 1934-5. His house is assessed at £56. Of the £600 £15 is received "tax free." He has a daughter (with an income of £25) who is studying at a university. What amount is repayable?

*** We gather that the £15 is liable to tax, but paid in full. On that assumption, and supposing that tax at the standard rate has been paid on the house, the amount repayable is as follows:

Personal allowance, £150 – £15 = £135 at 4s. 6d.	£30	7	6
Child allowance, £50 at 4s. 6d.	£11	5	0
Reduced rate relief, £175 at 2s. 3d.	£19	13	9
Total	£61	6	3

Depreciation of Car

"N. F." encloses a communication from the inspector of taxes pointing out that under a recent agreement of general application the "one-tenth" addition to the allowance, which has been in operation since 1932-3, can be excluded (as from 1933-4 onwards) in calculating the written-down value of the car, etc. Should he ask for a revision of the allowance to the new basis?

*** Obviously the fact that the one-tenth is not deducted year by year raises *pro tanto* the value on which the allowance is given as compared with that shown by the old calculation, and to that extent benefits the taxpayer. On the other hand, the more gained in "depreciation allowance" the less the ultimate "obsolescence allowance" when the car is replaced, and as the life of a car is normally a matter of a few years only the net result to the taxpayer is pretty much the same. If the inspector of taxes will recompute the allowance "N. F." will be wise to accept the benefit, but it is so small and temporary that it is really not worth bothering about. On the figures forwarded the benefit up to and including 1935-6 would be an additional £2 allowance only.

Professional Use of House

"HARASSED" bought a share in a practice, and under the agreement built a house that cost £3,750. The net schedule A assessment is £76, and he pays £200 loan and mortgage interest. It is agreed that half the house is used professionally, but the deduction is restricted to one-half of £76 = £39. Is this correct?

*** Yes. The net rental value is £76, and it is on that basis that any allowance for its partial use in the profession must be based. The actual cost of the house to our correspondent is no doubt £200 per annum, and if he were not entitled to deduct tax from that amount (for example, if it were paid to a bank) he could deduct that amount also as a professional expense. As it is he pays the lenders £200 – £45 = £155, and the £45 has to be paid over to the Revenue. That is why "Harassed" is assessed at a figure £200 in excess of his own income, so that he shall pay over the £45 he has temporarily retained.

LETTERS, NOTES, ETC.

Treatment of Fractures and an L.S.A.

Mr. JOHN GRIFFITH, M.R.C.S. (Richmond Hill, Surrey), writes: In the *Journal* of May 25th Dr. Vaughan Pendred, in his otherwise admirable letter, says: "I found that the house-surgeon in the local hospital was an L.S.A." He evidently looks down with contempt on every L.S.A., as "brethren of low degree," who should not be allowed to hold the position of a house-surgeon, even in a provincial hospital. In my medical life of thirty-five years the best two general practitioners held only the diploma L.S.A.; apart from their proficiency in their profession, they were also men of general culture. A young man trained in a large London hospital is bound to be well equipped for his life's work. Most men who take the L.S.A. diploma as their only qualification do so because of financial considerations: they are able to qualify a year earlier than they would were they sitting for the M.B., and, with regard to the Conjoint Board, the fees for their examinations are considerably higher. I am informed that the final examination in medicine, surgery, and midwifery of the Apothecaries' Hall is really a searching one, and many are the number of the referred. I hardly think it was the intention of Dr. Vaughan Pendred to deliberately hurt the feelings of many worthy members of our profession, yet sentences of this type are bound to hurt.

Diet at School and College

Modern research in the problems of dietetics has not failed to take note of the important question of the dietary in boarding schools, colleges of university rank, and hostels. This subject is the more important inasmuch as the needs of students at different ages are to some extent specialized. There is, moreover, good ground for believing that, in many residential institutions, far too little attention is paid to the provision and preparation of suitable food. Hence a welcome may be given to a pamphlet published by the Food Education Society (29, Gordon Square, W.C.1), and entitled "Problems of School and University Diet." The price is 1s. net, of 1s. 1d. post free. Here will be found a full report of a discussion held at the Conference of Educational Associations. The topics dealt with included such matters as the number of meals, variety of menu, methods of cooking vegetables, the place of uncooked food, bread and flour, and the influence of the tuck-shop and tuck-box on the dietetic problems of school life.

Medical Golf

The thirty-seventh annual summer meeting of the Medical Golfing Society was held at Walton Heath on May 30th, when a new competition was introduced for veterans with a handicap over 10, for which a handsome challenge cup was presented by Sir Charles Gordon-Watson. Mr. Rowley Bristow presented the prizes for the foursomes, the winners being Messrs. Grace and Kelleher (3 up). Messrs. Galletly and McGrath were awarded second prize after a tie with Messrs. Gordon and Campbell. Other competitions resulted as follows. *Lancet* Cup: J. Everidge. Henry Morris Cup and Gordon-Watson Cup: J. O'Malley. Class I: First prize, E. C. Seward (2 up); second prize, A. L. Lankester (all square); best last nine, I. A. Hunter. Class II: First prize, J. O'Malley; second prize, J. Everidge; best last nine, Hugh Lett.

Sanocrysin in Pulmonary Tuberculosis

Corrigendum

We regret that in our summary of Dr. Philip Ellman's contribution to the Royal Society of Medicine discussion of the above subject (*Journal*, June 8th, p. 1190) an error in reporting may have led to some misunderstanding of the first sentence. What the speaker, in fact, said in his opening remarks was: "Like artificial pneumothorax therapy, gold therapy has been subjected, since its introduction, to a good deal of controversy concerning its value, its indications, and contraindications in the treatment of pulmonary tuberculosis. When used with careful discrimination practical experience has shown that there is little doubt that gold therapy, like artificial pneumothorax therapy, holds a distinct position in the therapeutics of pulmonary tuberculosis."

Corrigendum

Dr. E. W. GOODALL (Hampstead) writes: May I be allowed to correct a slight error which appears on page 1138 of the *Journal* of June 1st? In my remarks on Dr. Pickles's paper I referred to the French physician "Louis" and not "Millet." Evidently I did not speak clearly.

Disclaimer

Dr. S. M. WHITAKER (Brownley Green, Manchester) writes: My attention has been called to an announcement of my removal, consulting hours, etc., in a local newspaper, the *Wythenshawe Gazette*. This appeared without my knowledge or consent.

The Siwa Oasis

The full title of Major T. I. Dun's book, which was reviewed in our issue of June 8th (p. 1173), under the heading "The Siwa Oasis," is *From Cairo to Siwa, across the Libyan Desert*.

Vacancies

Notifications of offices vacant in universities, medical colleges, and of vacant resident and other appointments at hospitals, will be found at pages 41, 42, 43, 44, 45, 48, and 49 of our advertisement columns, and advertisements as to partnerships, assistantships, and locumtenencies at pages 46 and 47.

A short summary of vacant posts notified in the advertisement columns appears in the *Supplement* at page 268.